The PHOTOFACT Servicer

SET 431 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ FEB 1, 1959

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This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

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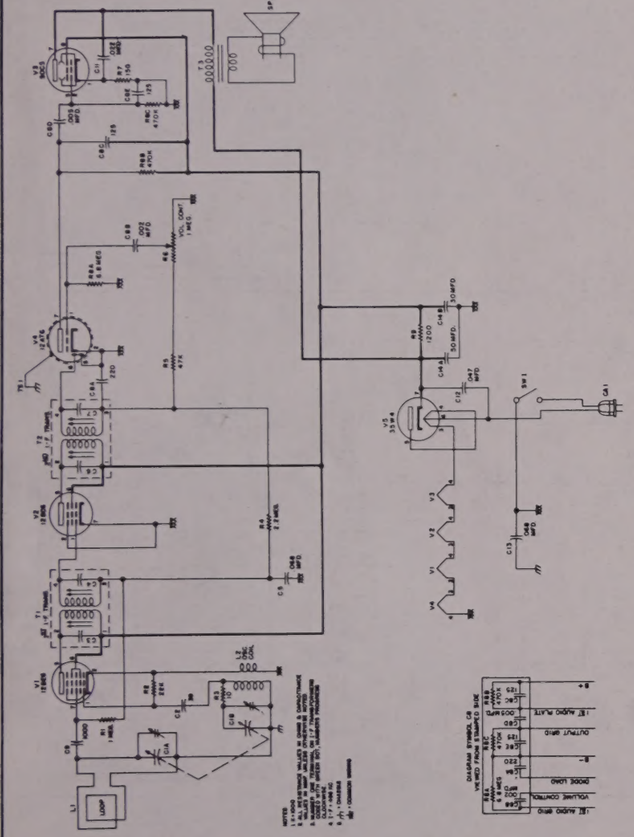
F-5CE, IV, MY, RD, TWE (Ch. 5E, F)

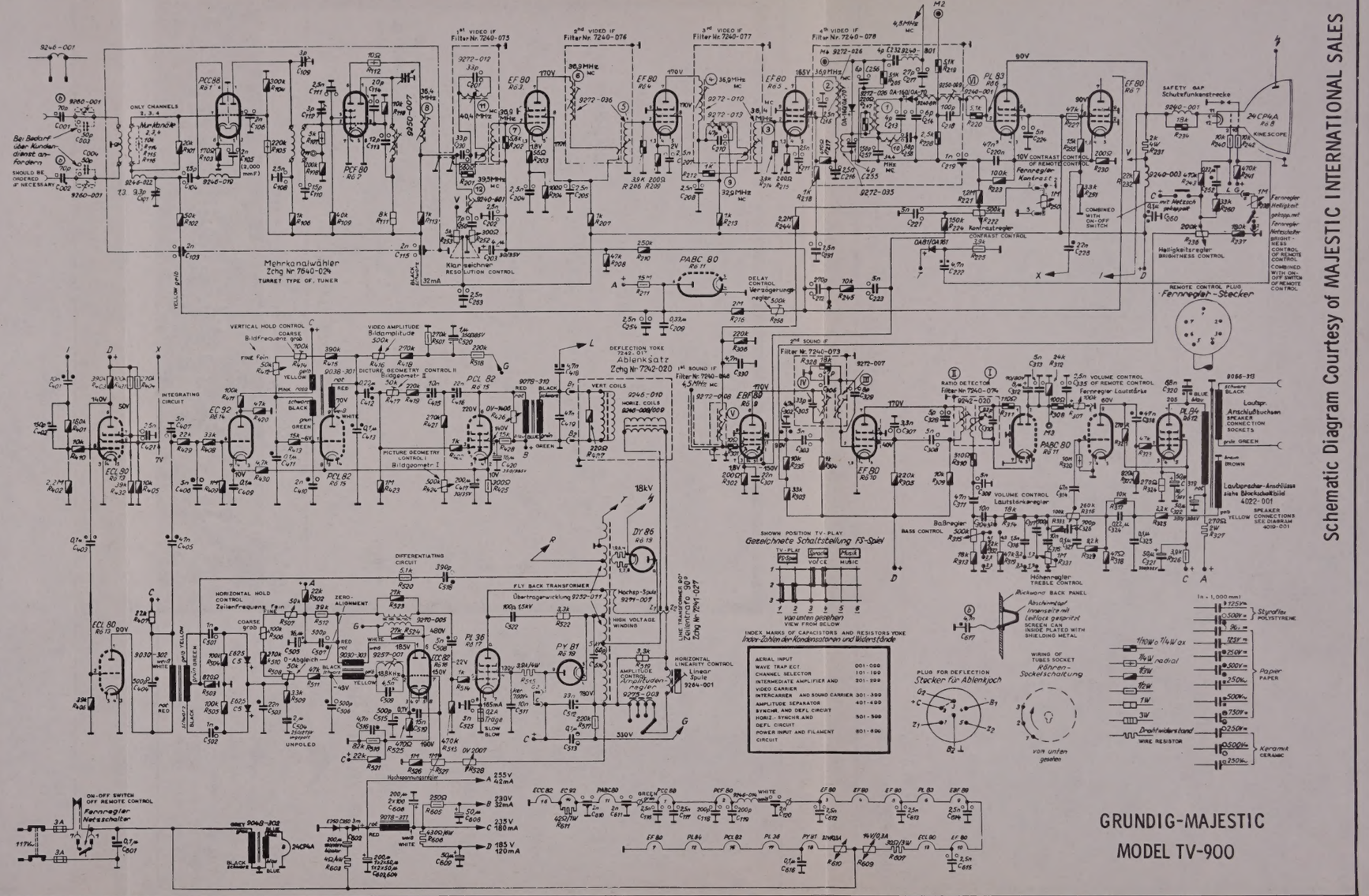
GRUNDIG-MAJESTIC
TV-900

RAULAND
RA4260A



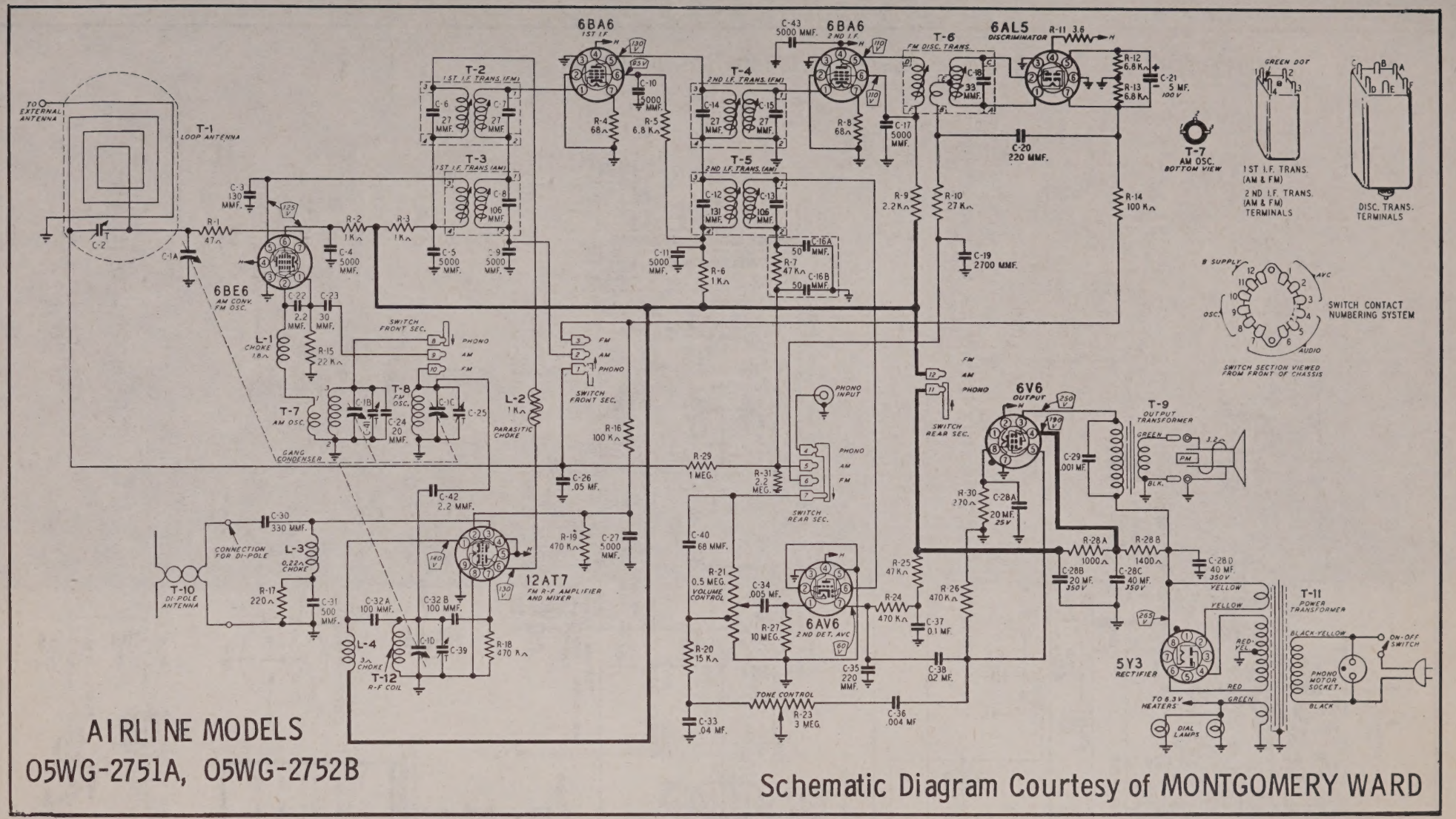
Schematic Diagram Courtesy of CROSLEY DIV. AVCO MFG. CORP.

CROSLEY MODELS F-5CE, IV, MY, RD, TWE
(Ch. 5E, F)



Schematic Diagram Courtesy of MAJESTIC INTERNATIONAL SALES

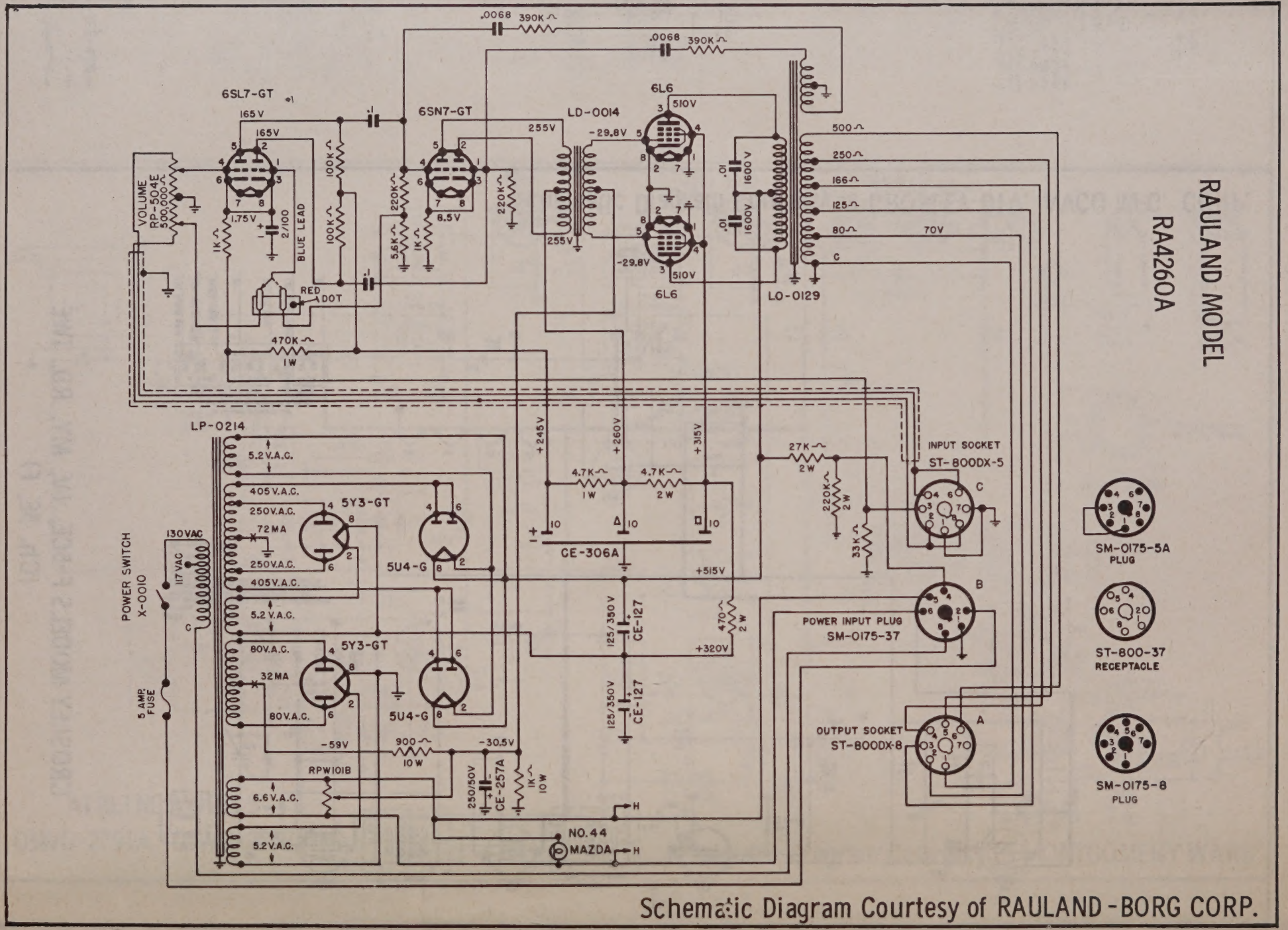
GRUNDIG-MAJESTIC
MODEL TV-900



AIRLINE MODELS
05WG-2751A, 05WG-2752B

Schematic Diagram Courtesy of MONTGOMERY WARD

RAULAND MODEL RA4260A



Schematic Diagram Courtesy of RAULAND-BORG CORP.

PHOTOFACT* Folder

with CIRCUITRACE*

ADMIRAL CHASSIS 20B6C, CB, T, TB, 20C6C, 20E6C, 20UB6C, CB, T, TB, 4C3, 8R1

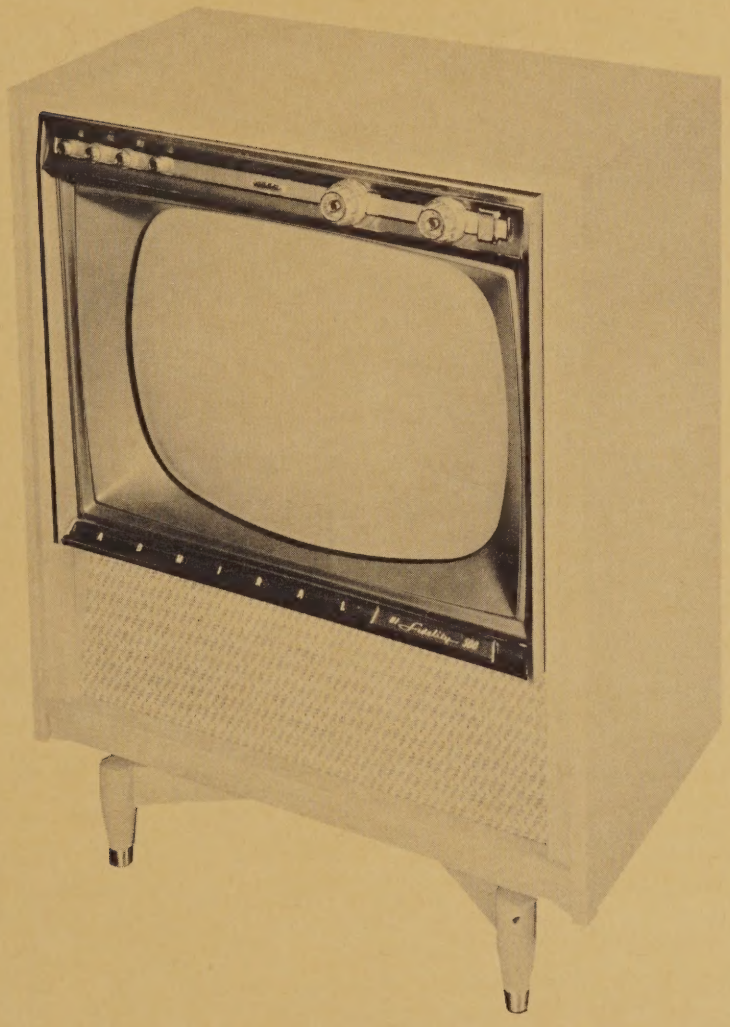
ADMIRAL CHASSIS 20B6C, CB, T, TB, 20C6C, 20E6C, 20UB6C, CB, T, TB, 4C3, 8R1

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

ADMIRAL CHASSIS 20B6C, CB, T, TB, 20C6C, 20E6C, 20UB6C, CB, T, TB, 4C3, 8R1



MODEL CH21UH33 (CH. 20UB6C)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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PHOTOFACT* Folder with CIRCUITRACE*

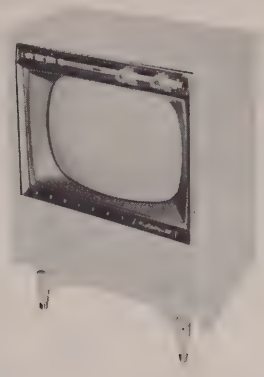
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

ADMIRAL CHASSIS 20B6C, CB, T, TB, 20C6C, 20E6C, 20UB6C, CB, T, TB, 4C3, 8R1

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Release 9 clips holding rear cover. Remove rear cover.
2. Remove speaker leads.
3. Remove 4 metal screws holding side chassis braces.
4. Remove 3 bottom chassis bolts.
5. Remove chassis from the front of cabinet.



MODEL CH21UH33 (CH. 20UB6C)

TRADE NAME	Admiral	MODELS	CHASSIS
		B121H1, CH21H32, CH21H33, CH21H34, CH21H41, CH21H43, CH21H44, LH21H22, LH21H23, LH21H24, LH21H32, LH21H35	20B6C 20B6CB
		TH21H22, TH21H23	20B6T 20B6TB
		CHS21H72, CHS21H77, LHS21H51, LHS21H53, LHS21H54, LHS21H62, LHS21H69	20C6C
		SH21H22, SH21H23, SH21H28, SH21H32, SH21H39, SH21H41, SH21H44	20E6C
		CH21UH32, CH21UH33, CH21UH34, CH21UH41, CH21UH43, CH21UH44, LH21UH22, LH21UH23, LH21UH24, LH21UH32, LH21UH35	20UB6C 20UB6CB
		TH21UH22, TH21UH23	20UB6T 20UB6TB
		CHS21H72, CHS21H77, LHS21H51, LHS21H53, LHS21H54, LHS21H62, LHS21H69	8R1 (Remote Control)
		SH21H22, SH21H23, SH21H28, SH21H32, SH21H39, SH21H41, SH21H44	4C3 (Amplifier)
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois		
TUBES	VHF: Nineteen, UHF : Twenty, Ch. 20E6C: Seventeen, Amplifier: Four, Remote Control: Eight		
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING UHF TV: 260 Watts, 2.35 Amp. @ 117 Volts AC		
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the Channel Selector and Fine Tuning knobs. Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, as the Channel Selector is rotated. Adjust for best picture and sound.

SAFETY GLASS REMOVAL

Remove 10 push-on type knobs from the top. Remove top metal trim by pulling straight out. Remove 3 metal screws holding metal retainer. Remove safety glass by lifting up and out.

SPECIAL ADJUSTMENTS

A. AGC
Observe the picture and advance the AGC control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

B. Focus
The focus may be varied in steps by the position of a plug in the Focus Adjustment board.

C. Super Range Finder
The Super Range Finder (R5) is adjusted to improve reception in fringe areas and areas where interference is present. The Super Range Finder control should be turned fully counterclockwise and left there if satisfactory pictures can be obtained in this position.
Snow can sometimes be minimized by carefully adjusting the Super Range Finder.
Keep this control set as far counterclockwise as possible consistent with satisfactory pictures to prevent overloading or excessive contrast.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The Horizontal Frequency coil is used as the Horizontal Lock control. Adjust the Horizontal Lock until the picture synchronizes horizontally. (For location, see tube placement chart.)

FUSE

One fuse is used for low voltage power supply protection, and a fuse wire for filament protection.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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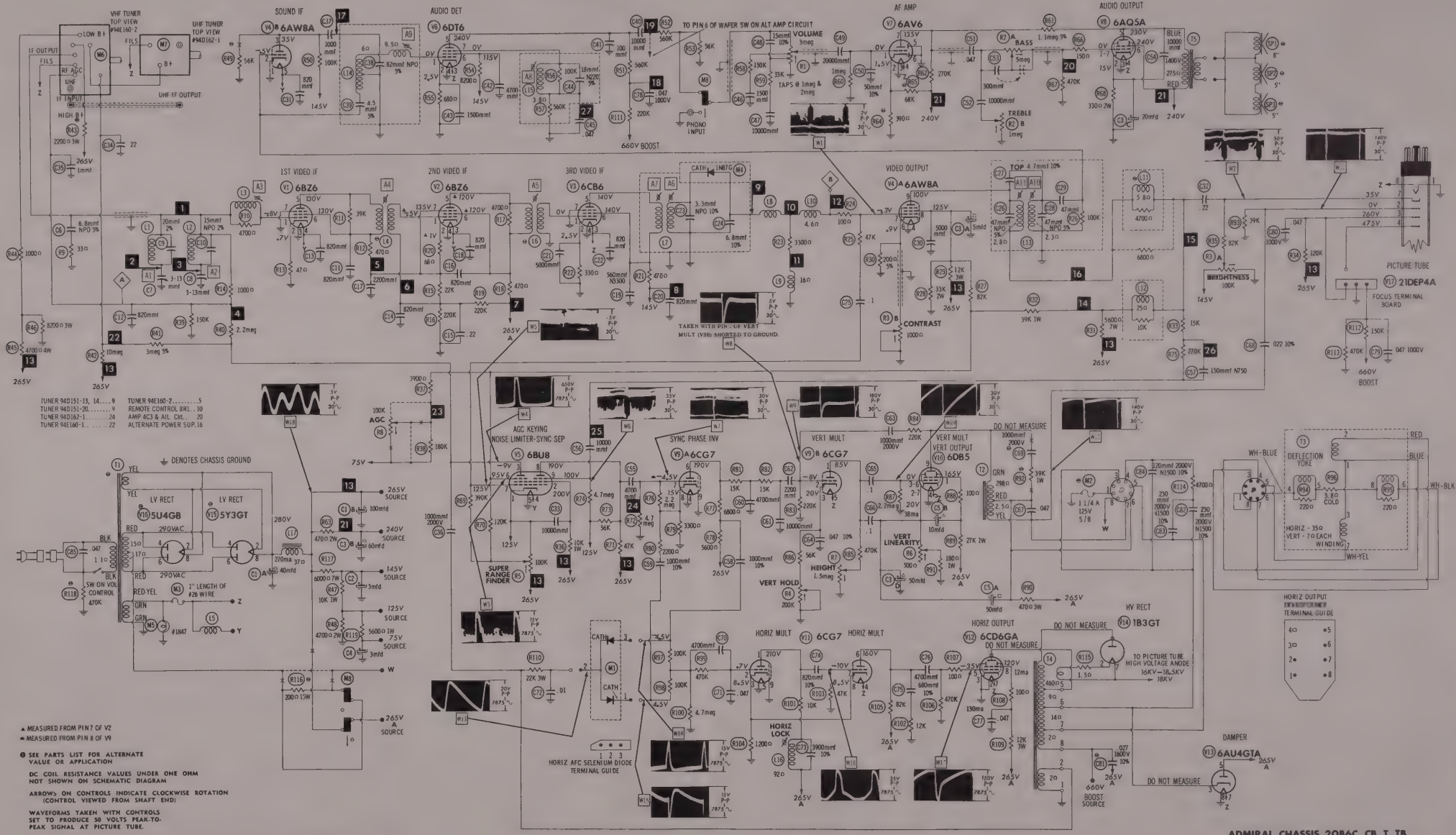

▲ MEASURED FROM PIN 7 OF V2

● MEASURED FROM PIN 8 OF V9

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt

2 Pin numbers are counted in clockwise direction on bottom of socket

3 Measured values are from socket pin to common negative unless otherwise stated

4 Line voltage maintained at 117 volts for voltage readings

5 All controls set for normal operation, no signal applied

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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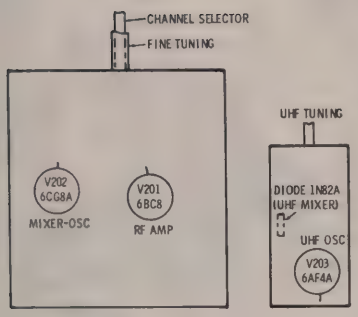
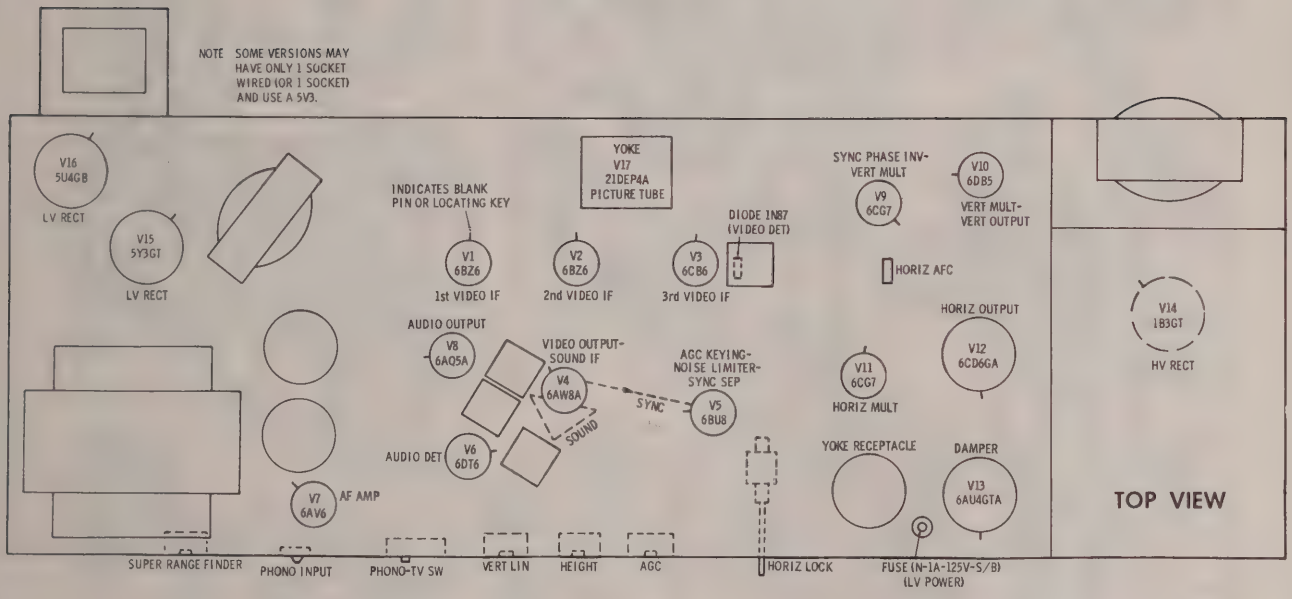
ADMIRAL CHASSIS 20B6C, CB, T, TB, 20C6C, 20E6C, 20UB6C, CB, T, TB, 4C3, 8R1

TUBE PLACEMENT CHART





TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (1A), Fuse Wire (F11), V15, V16

SWEEP FAILURE
No raster, has sound Rectifier(Horiz. AFC), V11, V12, V13, V14, V17
No vertical deflection V9, V10
Poor vert. linearity or foldover V9, V10
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, V15, V16
Vert. off freq. V9, V10
Horiz. off freq. V11

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1, V203 (UHF only)
No pic, has sound, has raster V4, V17
Has pic, no sound V4, V6, V7, V8
Overloaded picture V5

SYNC FAILURE
No vert. sync V5, V9
No horiz. sync V5, V9, Rectifier (Horiz. AFC)
No vert. or horiz. sync V5, V9

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PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER WITH UHF PROVISIONS 94E160-2

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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TUNER PARTS LIST AND DESCRIPTIONS

94E160-2, 94D162-1

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BC8	
V202	Mixer-Osc.	6CG8A	

ITEM No.	USE	TYPE	NOTES
V203	UHF Osc.	6AF4A	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120		65D10-136						N1500 10%
C202	22		65D6-142	N750-SI 22	TCZ-22	CTA6Q22U	CN7-422	5TCU-Q22	N750 10%
C203	15		65D10-135	N750-DI 15	DTZ-15	CTA6Q15U	CN7-415	5TCU-Q15	N750 10%
C204	8.2		65B28-082	NPO-SI 8.2					10%
C205	1000		65B26-7	EF-001	MFT-1000			503C-D1	
C206	2.7		65B28-027						10%
C207	2.2		65B28-022	NPO-SI 2.2	TCZ-2R2	CTA6V22C		5TCCB-V22	10%
C208	1000		65B26-7	EF-001	MFT-1000			503C-D1	
C209	.5-3		66A38-9		829-3		CT565A		
C210	1000		65B26-7	EF-001	MFT-1000			503C-D1	
C211	1.5		65B28-015	NPO-SI 1.5	TCZ-1R5	CTA6V15C	ZT-5515	5TCCB-V15	10%
C212	27		65D10-93			C10Q27C	CNO-427		NPO 10%
C213	1.5		65B28-015	NPO-SI 1.5	TCZ-1R5	CTA6V15C	ZT-5515	5TCCB-V15	10%
C214	.5-3		66A38-9		829-3		CT565A		
C215	47		65D10-180						N1500 10%
C216	.56		65B28-0056						10%
C217	1000		65D10-53	BPD-001	DD-102	BYA6D1	B-210	5HK-D1	
C218	1000		65B26-7	EF-001	MFT-1000			503C-D1	
C219	10		65D10-160						N2200 5%
C220	1		65D6-141						N330 1%
C221	1		65B28-010	NPO-SI 1	TCZ-1			5TCCB-V1	10%
C222	1000		65B26-7	EF-001	MFT-1000			503C-D1	
C223	800		65D10-20	BPD-0008	DD-801	L10T8		5GA-T8	
C224	.5			NPO-SI .5	TCZ-R5				
C225	.5			NPO-SI .5	TCZ-R5				
C226	1.5			NPO-SI 1.5	TCZ-1R5	CTA6V15C	ZT-5515	5TCCB-V15	
C227	.5-3				829-3		CT565A		
C228	135								
C229	1000			EF-001	MFT-1000			503C-D1	
C230	18								
C231	800		65D10-20	BPD-0008	DD-801	L10T8		5GA-T8	
C232	1000			EF-001	MFT-1000			503C-D1	
C233	1000			EF-001	MFT-1000			503C-D1	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R201	3900Ω		60B8-392	
R202	820K		60B8-824	
R203	560K		60B8-564	
R204	10K		60B8-103	
R205	1000Ω		60B8-102	
R206	10K		60B8-103	
R207	12K		60B8-123	

ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R208	27Ω		60B8-270	
R209	8200Ω	3	61B24-347	
R210	33Ω		60B8-330	
R211	680K		60B8-684	
R212	5600Ω		60B8-562	
R213	100Ω		60B8-101	
R214	1meg		60B8-105	

COILS (RF-IF)

ITEM No.	USE	ADMIRAL PART No.	NOTES
L201	VHF Ant. Trans.	700B131	
L202	IF Trap Coil	73D30-43	
L203	Ant. Coils	73D30-12	Channel 2-5
L204	Ant. Coil	73D30-17	Channel 6
L205	"	73D30-18	Channel 7-9
L206	"	73D30-21	Channel 10-11
L207	"	73D30-40	Channel 12-13
L208	Cathode Choke	73D30-51	
L209	RF Coils	73D30-19	Channel 2-5
L210	RF Coil	73D30-27	Channel 6
L211	"	73D30-8	Channel 7-9
L212	"	73D30-5	Channel 10-11
L213	"	73D30-25	Channel 12-13
L214	RF Choke	73D30-29	
L215	Mixer Grid Coils	73D30-20	Channel 2-5
L216	Mixer Grid Coil	73D30-38	Channel 6
L217	"	73D30-45	Channel 7-9

ITEM No.	USE	ADMIRAL PART No.	NOTES
L218	Mixer Grid Coil	73D30-33	Channel 10-11
L219	"	73D30-31	Channel 12-13
L220	Osc. Coil	73D30-53	Channel 2
L221	"	73D30-53	Channel 3
L222	"	73D30-54	Channel 4
L223	"	73D30-59	Channel 5
L224	"	73D30-58	Channel 6
L225	"	73D30-9	Channel 7
L226	"	73D30-6	Channel 8
L227	"	73D30-60	Channel 9
L228	"	73D30-57	Channel 10
L229	"	73D30-57	Channel 11
L230	"	73D30-1	Channel 12
L231	"	73D30-32	Channel 13
L232	Mixer Plate Coil	73D30-44	
L233	RF Choke	73D30-42	
L234	UHF IF Coil	73D30-41	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ADMIRAL PART No.	CBS PART No.	SYLVANIA PART No.	
M201	1N82A	94D112-57	1N82A	1N82A	UHF Mixer (Clip-in)

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M202	Rotor Disc	A7201	Tuner 94E160-2
M203	Rotor Disc	A7209	Tuner 94E160-10

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS FOR TUNERS 94E160-1, -2

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools:
A201, A202 ..... General Cement #5000, 5003, 5009, 8276 or 8290
Walsco #2515, 2520, 2523, 2525 or 2537
A203 thru A214 ..... General Cement #8607, 9291 or 9294
Walsco #2520, 2522, 2523, 2524 or 2537
A215 ..... General Cement #5009, 8271, 8275, 8276, 8721, 8722, 9150 or 9298
Walsco #2516 or 2519

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 4 volt bias supply to point Ⓣ. Positive to chassis.
Turn Contrast fully clockwise.
Set AGC and Super Range Finder controls fully counterclockwise.
If separate marker generator is used, couple loosely to antenna terminals.
DO NOT remove the bottom shield of the tuner during alignment.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 15K to point Ⓥ. Low side to chassis.	A201, A202	Adjust for response curve similar to Fig. 201 with markers above 90%.
2.	"	"	85MC	83.25MC 87.75MC	6	"		Check for response curve similar to Fig. 201. Retouch A201 and A202 for maximum amplitude and flat-topped appearance with markers properly positioned.
3.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response curve similar to Fig. 201. If markers fall below 70% on any channel, make compromise adjustment of A201 and A202 with channel switch set to that channel.
			207MC	205.25MC 209.75MC	12			
			201MC	199.25MC 203.75MC	11			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Det. load.	A203	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A204	
			201MC	199.25MC 203.75MC	11		A205	
			195MC	193.25MC 197.75MC	10		A206	
			189MC	187.25MC 191.75MC	9		A207	
			183MC	181.25MC 185.75MC	8		A208	
			177MC	175.25MC 179.75MC	7		A209	
			85MC	83.25MC 87.75MC	6		A210	
			79MC	77.25MC 81.75MC	5		A211	
			69MC	67.25MC 71.75MC	4		A212	
			63MC	61.25MC 65.75MC	3		A213	
			57MC	55.25MC 59.75MC	2		A214	

CONTINUED PAGE 8

TUNER ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT FOR TUNERS 94E160-2, -10

Set Contrast fully clockwise.
Set AGC and Super Range Finder fully counterclockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Connect the negative lead of a 4 volt bias supply to point (T). Positive to chassis.
If a separate marker generator is used, couple loosely to UHF antenna terminals.
Bottom shield must be in place when checking response curve.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Two 120Ω Carbon Resistors	Across UHF antenna terminals with 120Ω in each lead. Loosely couple VHF marker generator to antenna terminals.	700MC (15MC Swp)	41.25MC 45.75MC	UHF 52	Vert. Amp. thru 10K to point (U). Low side to chassis.	A215	Adjust for maximum gain and symmetry of response similar to Fig. 203 with markers as shown.
6.	"	"	"	"	"	Vert. Amp. thru 47K to Video Det. load. Low side to chassis. Connect a 270mmf capacitor across input terminals of scope.		Check for response similar to Fig. 202. If necessary, make compromise adjustment of A215 to obtain desired response.

ALIGNMENT INSTRUCTIONS FOR TUNERS 94D151-13, -14, -20

VHF OSCILLATOR ALIGNMENT

Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, as the Channel Selector is rotated. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminared with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise designated.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (T). Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
2.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response similar to Fig. 201. If markers fall below 70% on any channel, make compromise adjustments of A201 and A202, with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
			207MC	205.25MC 209.75MC	12			
			201MC	199.25MC 203.75MC	11			
			195MC	193.25MC 197.75MC	10			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			85MC	83.25MC 87.75MC	6			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

FIG.201

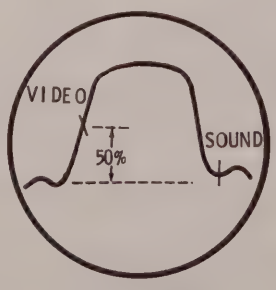


FIG.202

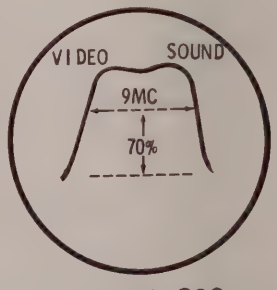
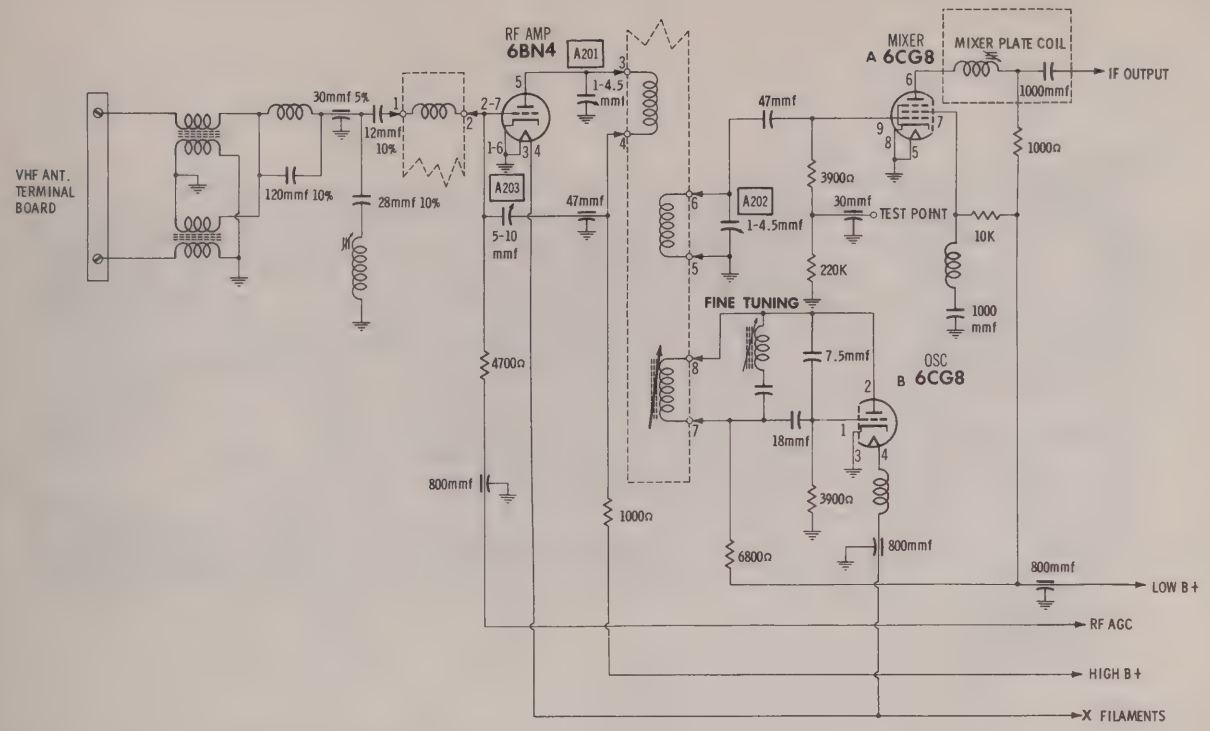


FIG.203



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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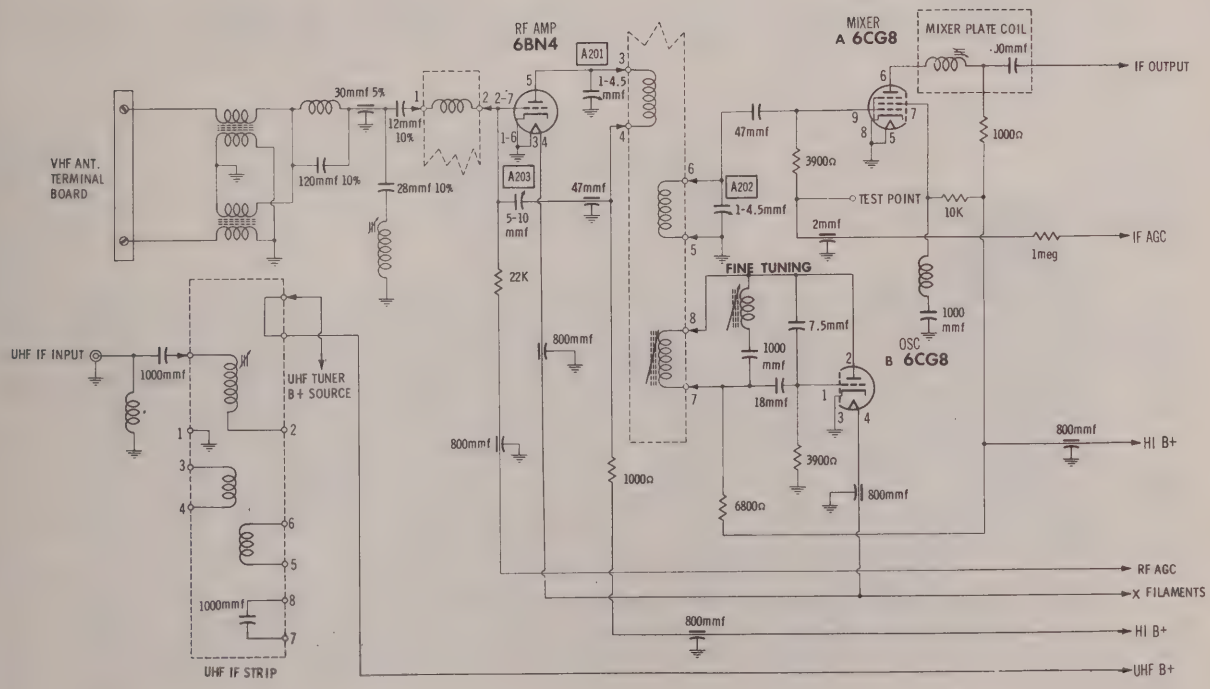
VHF TUNER 94D151-13, -14



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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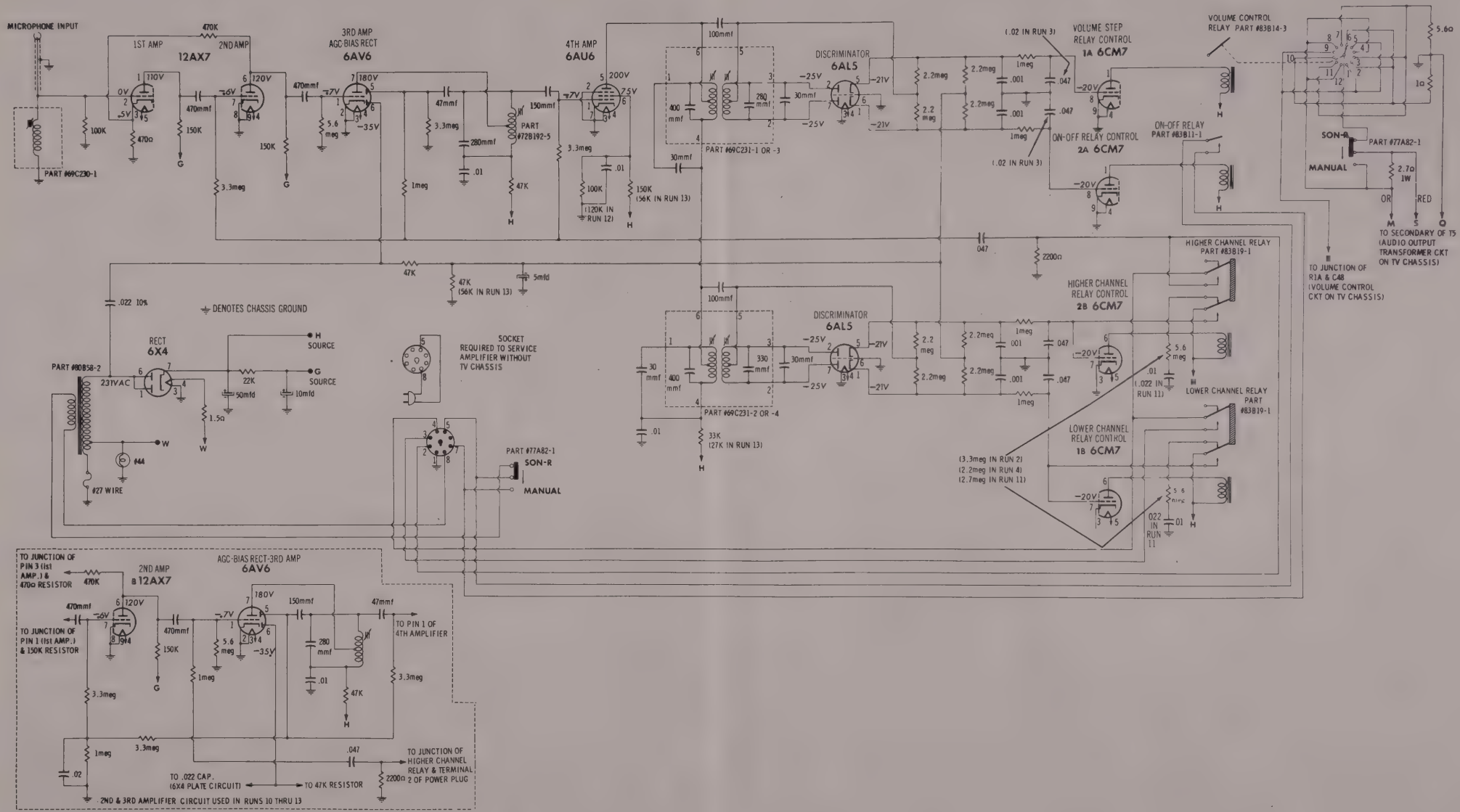
VHF TUNER WITH UHF PROVISIONS 94D151-20



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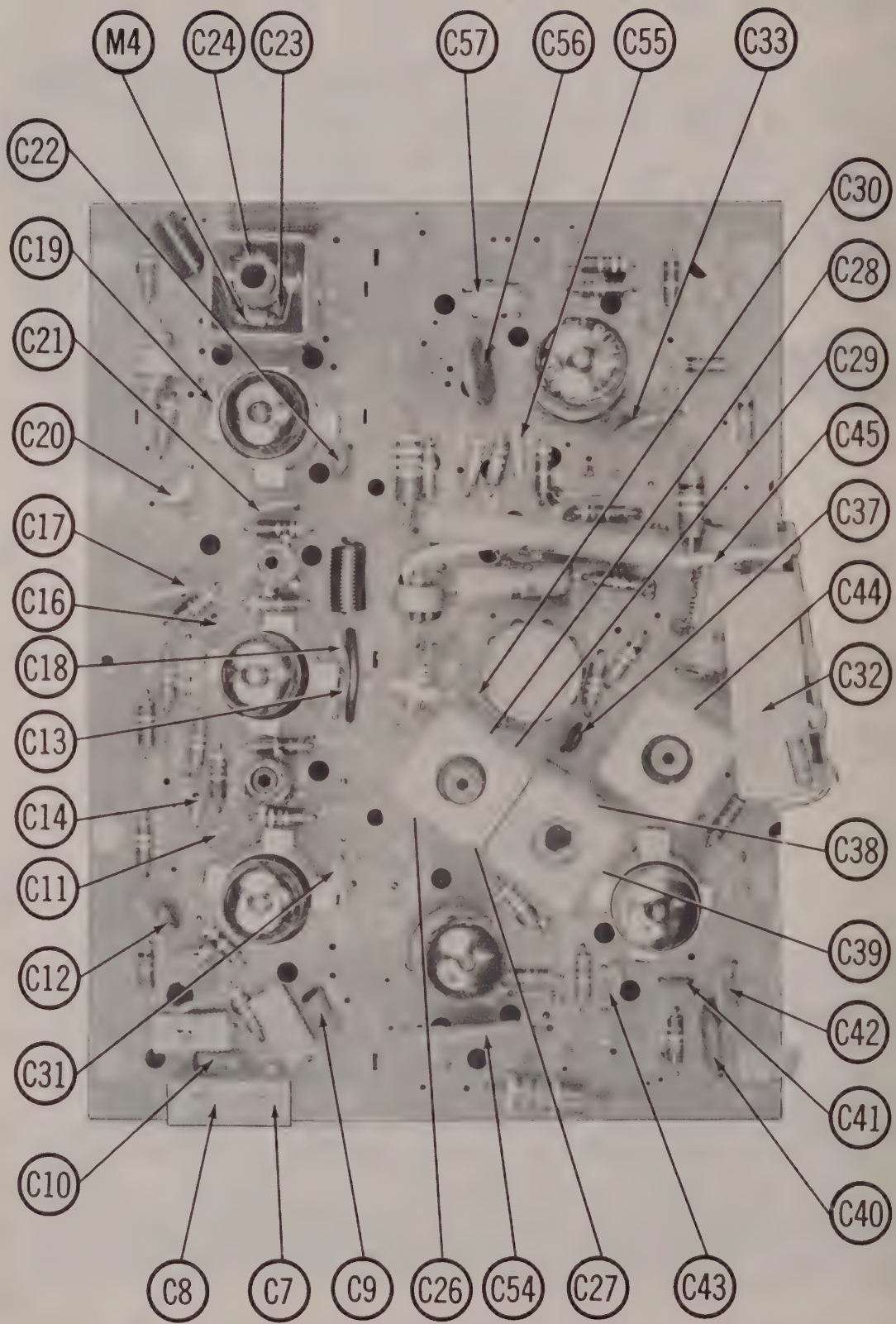
REMOTE CONTROL CHASSIS 8R1

CHASSIS TOP VIEW

CHASSIS BOTTOM VIEW - CAPACITOR IDENT



PRINTED BOARD - CAPACITOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st Video IF	6BZ6	
V2	2nd Video IF	6BZ6	
V3	3rd Video IF	6CB6	
V4	Video Output-Sound IF	6AW8A	
V5	AGC Keying-Noise Limiter-Sync Sep.	6BU8	
V6	Audio Det.	6DT6	
V7	AF Amp.	6AV6	
V8	Audio Output	6AQ5A	

ITEM No.	USE	TYPE	NOTES
V9	Sync Phase Inv. -Vert. Mult.	6CG7	
V10	Vert. Mult. -Vert. Output	6DB5	
V11	Horiz. Mult.	6CG7	
V12	Horiz. Output	6CD6GA	
V13	Damper	6AU4GTA	
V14	HV Rect.	1B3GT	
V15	LV Rectifier	5Y3GT	Note 1
V16	LV Rectifier	5U4GB	Note 1

Note 1. Some versions may have only 1 socket wired (or 1 socket) and use a 5V3.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	ADMIRAL PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V17	21DEP4A	21DEP4 ①		21DEP4 ②	① " Aluminized" ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▰40	350	67D15-323	AFH2-64-25	B0483	FP247	TMT-43	D-177	TVL-2780
B	▲100	350							
C2	3	350	67B4-40	PRS350V4	BR435	TC60	TD-4-450	MT-4504	TVA-1601
C3A	■5	350	67D15-322	AFH4-56-20	D0032	FP454.2			TVLS-4607.7*
B	▰60	350			BR505				
C	20	50							
D	▲50	50							
C4	3	350	67B4-40	PRS350V4	BR435	TC695	TD-4-450	MT-4504	TVA-1601
C5A	■50	350	67D15-221	AFH3-28-30	C0225	FP330.7	TMS-46	S-220	TVLS-2629*
B	▲10	350					TD-10-450	MT-4510	

* Not normally in distributors stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	6.8		65D10-26	NPO-DI 6.8	DTZ-6R8	C10V68C	CNO-568	5TCCB-V68S 5%*	NPO 5%
C7	3-13		66A38-7						
C8	3-13		66A38-7						
C9	20				TCZ-20			5TCC-Q2S 2%*	NPO 2%
C10	15		65D6-140	NPO-DI 15	TCZ-15		CNO-415	5TCC-Q15S 2% *	NPO 2%
C11	820		65D10-91	BPD-0008	DD-821	BYA10T82	B-382	5GA-T82	
C12	820		65D10-91	BPD-0008	DD-821	BYA10T82	B-382	5GA-T82	
C13	820		65D10-91	BPD-0008	DD-821	BYA10T82	B-382	5GA-T82	
C14	820		65D10-91	BPD-0008	DD-821	BYA10T82	B-382	5GA-T82	
C15	.22	400	64B8-24	P488N-22		CUB6P22	GEM-4022	4TM-P22	
C16	820		65D10-91	BPD-0008	DD-821	BYA10T82	B-382	5GA-T82	
C17	2200		65D10-170	BPD-0022	DD-222	BYA10D22	B-222	5HK-D22	
C18	820		65D10-91	BPD-0008	DD-821	BYA10T82	B-382	5GA-T82	
C19	560		65D6-131						N3300
C20	820		65D10-91	BPD-0008	DD-821	BYA10T82	B-382	5GA-T82	
C21	5000		65D10-5	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C22	820		65D10-91	BPD-0008	DD-821	BYA10T82	B-382	5GA-T82	
C23	3.3		65D6-89	NPO-DI 3.3	DTZ-3R3	C10V33C	CNO-533	5TCCB-V33S 10%*	NPO 10%
C24	6.8		65B41-141	NPO-SI 6.8	DTZ-6R8	C10V68C	CNO-568	5TCCB-V68	10%
C25	.1	400	64B8-7	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C26	47		65D10-92	NPO-DI 47	DTZ-47	C10Q47C	CNO-447	5TCC-Q47S 5% *	NPO 5%
C27	4.7		65B28-047	NPO-DI 4.7	DTZ-4R7	C10V47C	CNO-547	5TCC-V47S 10% *	10%
C28	47		65D10-92	NPO-DI 47	DTZ-47	C10Q47C	CNO-447	5TCC-Q47S 5% *	NPO 5%
C29	47		65D10-80	BPD-000047	DD-470	L10Q47	CNO-447	5GA-Q47	
C30	5000		65D10-5	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C31	820		65D10-91	BPD-0008	DD-821	BYA10T82	B-382	5GA-T82	
C32	.22	400	64B8-24	P488N-22		CUB6P22	GEM-4122	4TM-P22	
C33	10000		65D10-41	BPD-01	DD-103	BYA10S1	GEM-110	5HK-S1	
C34	.22	200	64B8-37	P288N-22		CUB6P22	GEM-2022	2TM-P22	
C35	1.0	100	64A10-3	P288N-1.0		CUB2W1	GEM-201	2TM-M1	
C36	1000	2000	65D10-181		DD30-102	HVB20D1	2HV-210	20GA.-D1	
C37	1000		65D10-53	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C38	82		65D10-98		DTZ-82	C10Q82C	CNO-482	5TCC-Q82S 5% *	NPO 5%
C39	4.5		65B40-57					5TCCB-V45S 5% *	5%
C40	10000		65D10-41	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C41	100		65D10-84	BPD-0001	DD-101	L10T1	2HV-310	5GA-T1	
C42	4700		65D10-112	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C43	1500		65D10-103	BPD-0015	DD-155	BYA10D15	B-215	5HK-D15	
C44	18		65D10-140						N220 5%
C45	.047	200	64B8-41	P488N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C46	1500		65D10-103	BPD-0015	DD-152	BYA10D15	B-215	5HK-D15	
C47	10000		65D10-41	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C48	15		65D6-18	NPO-SI 15	DTZ-15	CTA6Q15C	CNO-415	5TCC-Q15S 10% *	10%
C49	20000		65D10-137	BPD-02	DD-203	BYB6S2	B-120	5GA-S2	
C50	50		65D6-4	NPO-SI 50	DTZ-50	C10Q5C		5TCC-Q5S 10% *	10%
C51	.047	600	64B8-9	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C52	10000		65D10-41	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C53	300		65D10-141	BPD-00033	DD-301	L10T3	B-333	5GA-T3	
C54	10000	1400	65D10-65		DD30-102		2HV-110	20HKB-S1	
C55	4700		65D10-112	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C56	10000		65D10-41	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C57	150		65D10-85		DTN-150	C10T15U	CN7-315	5TCC-T15	N750
C58	1000		65D10-184	DI-1000		HVB30D1	JL-210	5GA-D1S 10% *	10%
C59	1000		65D10-184	DI-1000		HVB30D1	JL-210	5GA-D1S 10% *	10%
C60	4700		65D10-112	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C61	10000		65D10-41	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C62	2200		65D10-111	BPD-0022	DD-222	BYA10D22	B-222	5HK-D22	
C63	1000	2000	65D10-181	HVD-30-1000	DD30-102	HVB20D1	2HV-210	20HKB-D1	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C64	.047	600	[illegible]					5TM-S47	10%
C65	.1	400	64B8-26	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C66	.1	400	64B8-26	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C67	.047	600	64B8-9	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C68	.022	600	64B22-11				GEM-6022	6TM-S22S 10% *	10%
C69	1000	2000	65D10-181	HVD-30-1000	DD30-102	HVB20D1	2HV-210	20HKB-D1	①
C70	4700		65D10-112	BPD-0047	DD-472	BYAl0D47M	B-247	5HK-D47	
C71	.047	600	64B8-9	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C72	.01	600	64B8-13	P688N-01	DB-103	CUB6S1	GEM-611	6TM-S1	
C73	3900		65B21-392	1464-0039		1R5D39		MS-239	10%
C74	820		65B21-821	1464-00082		1R5T82		MS-382	10%
C75	680		65B21-680	1464-00068		1R5T68		MS-368	10%
C76	4700		65D10-112	BPD-0047	DD-472	BYAl0D47M	B-247	5HK-D47	
C77	.047	600	64B8-9	P688N-047	DF-503	CUB6S47	GEM-10147	6TM-S47	
C78	.047	1000	64B2-30	P1088N-047		CUB10S47	GEM-10147	10TM-S47	
C79	.047	1000	64B2-30	P1088N-047		CUB10S47	GEM-10147	10TM-S47	
C80	.047	1000	64B2-30	P1088N-047		CUB10S47	GEM-10147	10TM-S47	
C81	.027	1600	64B2-46					16TM-S27S 10% *	10% ③
C82	230	2000	65D10-185						N1500 10%
C83	230	2000	[illegible]						N1500 10%
C84	120	2000	65D10-148						N1500 10%
C85	.047	600	63B12-1	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	

* Not normally in distributors stock. Available thru distributor on order to manufacturer.
① Not used in Ch. 20B6C, T Run 12 and lower.
② Ch. 20B6C, T, 20C6C, Run 13 and lower may use .022mfd ③ 1600V in this application

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3meg	½	75B44-3				PP36DT26	Volume, Taps ① 1meg & 2meg
B	Shaft						D8-36	2meg
C	Switch						Not Req.	Pull on switch
R2A	5meg	½	75B17-30					Bass
B	1meg	½				†(Q)988	††(UE)916	
R3A	100K	½	75B17-31	F1-31	RTV-673	†(Q)J-985	††(UE)909	Treble Brightness
B	1000Ω	½		R2-5	Not Req.			Contrast
R4A	200K	½	75D13-102	B-46	A47-200K-S	Q11-129	U43	Vertical
B	Shaft			Not Req.	[illegible]	Not Req.	Not Req.	
R5A	100K	½	75D20-116	AB-40	B47-100K-S	B11-128	PTA15L	Super Range Finder
B	Shaft			AK-1	Not Req.	TM-1	Not Req.	
R6A	500Ω	½	75D20-100	AB-4	B47-500-S	Q11-103	PTA5L	Vert. Linearity
B	Shaft			AK-19	Not Req.	TQ	Not Req.	
R7A	1.5meg	½	75D20-104	AB-742	B47-1.5meg -S	Q11-138	PTA15L	Height
B	Shaft			AK-19	Not Req.	TQ	Not Req.	
R8A	100K	½	75D20-117	AB-41	A47-100K-Z	B13-138	U39	AGC
B	Shaft			AK-1	FK8-1/4	TM-1	Not Req.	

† "Concentrikit" Equivalent: K-2 Kit with Base Elements & Shafts B17-141, P1-102 (Panel) B13-137, R1-118 (Rear)
†† "STA-LOC" Equivalent: FD56R, OS062, RU16A, LS562.
‡ "Concentrikit" Equivalent: K-6 Kit with Base Elements & Shafts B11-128, P14-102 (Panel) B17-108, R1-118 (Rear)
‡‡ "STA-LOC" Equivalent: FA15L, OS062, RU3R, LS562.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R9	33Ω		60B8-330	
R10	4700Ω		60B8-472	
R11	39K		60B8-393	
R12	470Ω		60B8-471	
R13	47Ω		60B8-470	
R14	1000Ω		60B8-102	
R15	22K		60B8-223	
R16	220K		60B8-224	
R17	4700Ω		60B8-472	
R18	470Ω		60B8-471	
R19	220K		[illegible]	
R20	68Ω		60B8-680	
R21	470Ω		60B8-471	
R22	330Ω		60B8-331	
R23	3300Ω		60B8-332	
R24	100Ω		60B8-101	
R25	47K		60B8-473	
R26	100K		60B8-104	
R27	82K		60B8-823	
R28	33K	2	60B20-333	
R29	12K	3	61B24-351	
R30	200Ω 5%		60B7-201	
R31	5600Ω	7	61B24-743	
R32	39K	1	60B14-393	
R33	15K		60B8-153	
R34	120K		60B8-124	
R35	82K		60B8-823	
R36	10K	1	[illegible]	
R37	3900Ω		60B8-392	
R38	180K		[illegible]	
R39	150K		60B8-154	
R40	2.2meg		[illegible]	
R41	3meg 5%		60B7-305	
R42	10meg		60B8-106	
R43	2200Ω	3	61B24-333	Note 1
R44	1000Ω		60B8-102	
R45	4700Ω	4	61B24-441	
R46	8200Ω	3	61B24-347	
R47	10K	1	60B14-103	
R48	4700Ω	2	60B20-472	
R49	56K		[illegible]	Note 3
R50	100K		60B8-104	
R51	560K		[illegible]	
R52	560K		60B8-564	
R53	56K		60B8-563	
R54	8200Ω		60B8-822	
R55	680Ω		60B8-681	
R56	100K		60B8-104	
R57	560K		[illegible]	
R58	150K		60B8-154	
R59	33K		60B8-333	
R60	1meg		60B8-105	
R61	1.1meg 5%		60B7-115	
R62	270K		60B8-274	
R63	470Ω	2	60B20-471	
R64	390Ω		[illegible]	Note 3
R65	68K		60B8-683	Note 3
R66	150Ω		60B8-151	
R67	470K		60B8-474	
R68	330Ω	2	60B20-331	
R69	390K		[illegible]	
R70	120K		60B8-124	
R71	47K		60B8-473	
R72	4.7meg		60B8-475	
R73	56K		[illegible]	
R74	4.7meg		60B8-475	
R75	270K		60B8-274	
R76	2.2meg		60B8-225	
R77	6800Ω		60B8-682	
R78	5600Ω		60B8-562	
R79	3300Ω		60B8-332	
R80	2200Ω		60B8-222	
R81	15K		60B8-153	
R82	15K		60B8-153	
R83	220K		[illegible]	
R84	220K		60B8-224	
R85	470K		60B8-474	
R86	56K		[illegible]	
R87	2.2meg		[illegible]	
R88	100Ω		60B8-101	
R89	27K	1	60B14-273	
R90	470Ω	3	61A1-45	
R91	180Ω	1	60B14-181	
R92	39K	1	[illegible]	Note 4
R93	39K		[illegible]	
R94	220Ω		60B8-221	
R95	220Ω		[illegible]	
R96	3.8Ω Cold		61A-27	
R97	100K		60B8-104	
R98	100K		60B8-104	
R99	470K		60B8-474	
R100	4.7meg		60B8-475	
R101	10K		60B8-103	
R102	12K		60B8-123	
R103	47K		60B8-473	
R104	1200Ω		60B8-122	
R105	82K		[illegible]	
R106	470K		60B8-474	

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R107	100Ω		60B8-101	
R108	100Ω		60B8-101	
R109	12K	3	61B24-351	
R110	22K	3	61B24-357	
R111	220K		60B8-224	
R112	150K		60B8-154	
R113	470K		60B8-474	
R114	4700Ω		60B8-472	
R115	1.5Ω		60B28-60	
R116	200Ω	15	61A1-46	Note 5
R117	6000Ω	7	61B20-28	Note 6
R118	470K		60B8-274	Note 7
R119	5600Ω	1	60B14-562	

Note 1. Ch. 20B6CB, TB, 20C6C, Run 18 and higher use 10K 3W in this application.
Note 2. Not used in Ch. 20B6C, T Run 10.
Note 3. Not used in Ch. 20B6C, T, Run 11 and lower.
Note 4. Not used in Ch. 20B6C, T Run 13 and lower.
Note 5. Not used in Ch. 20E6C.
Note 6. VHF chassis use 3750Ω 7W in this application (Part #61B20-27).
Note 7. Ch. 20B6C, T, 20C6C Run 14 and lower use 270K in this application (Part #60B8-274).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ADMIRAL PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	41.25MC Trap Coil	73B37-4					
L2	47.25MC Trap Coil	73B37-4					
L3	1st Video IF	72C132-31					
L4	2nd Video IF	72C132-38					Note 1
L5	Fil. Choke	73B37-2		19-1001	BC-562	4604	1.4 Microhenries
L6	3rd Video IF	72C132-38					Note 1
L7	4th Video IF	72B191-3					
L8	Resonant Choke	73B31-4					
L9	Shunt Peaking Coil	73B5-20		19-3500	TV-203	6174	VP-8	500 Microhenries
L10	RF Choke	73B31-3						28 Microhenries
L11	Series Peaking Coil	73C5-23						Wound on 4700Ω resistor, Note 2
L12	Shunt Peaking Coil	73B5-36						Wound on 10K resistor
L13	1st Sound IF	72B185-2						Includes C18, C19, C20
L14	2nd Sound IF	72B186-1						Includes C36, C37
L15	Quadrature Coil	72C132-37						Includes C42, R55

Note 1. Ch. 20UB6CB, TB, Run 18 use Part #72C132-39 in this application.
Note 2. Ch. 20C6C, 20B6C, T Run 15 and lower use Part #73C5-32 wound on 18K

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ADMIRAL PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L16	92Ω		94D17-7		TV-165 ♦	6211 ▲	H-102 *	HS-7 ♦	Horiz. Freq.

* Enlarge mounting hole. ♦ Disregard tap. ▲ Disregard tap and enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE @ CURRENT 1000 ~(~)	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L17	.270A	37Ω	1.3 Hy.	74B18-29	C5037	C-2996		C-2328	26C44	C-17X

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V	580VCT @ .270A	5V @ 5A	80D65-5 ①						R-61BC②
		SEC. 3	SEC. 4	SEC. 5						
		6.3V @ 10.6A								

① Used in Ch. 20UB6C, T, CB, TB. Ch. 20C6C use Part #80D65-6. Ch. 20B6C, T, CB, TB, 20E6C use Part #80D-65-4.
② Use original mounting brackets.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Output	79B43-17			V-319				A-113X ①
T3	Yoke-Horiz. (18.8MH) (10^0)-Vert. (13.8MH)	94D150-4 ②			Y-110 ③④		DY-27A ④	Y-52 ④	Y-60 & NW23 & YC110
	Rear Cover & Centering Device	94C152-1							
T4	Horiz. Output	79D77-5			X162 *	EFR172*	HO-304 *	FLY-137 *	D-151

① Connect as autoformer.
② Includes yoke plug and R92, R93 and R94.
③ Connect yoke terminal #2 to yoke plug pin #3, yoke terminal #1 and #3 to yoke plug pin #4, yoke terminal #10 to yoke plug pin #6.
④ Requires new rear cover and centering device.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL [illegible] CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	5			5	5	5	5	
	6			6	4	6	6	
	7			7	2	7	7	
	8			8	1	8	8	
	2			2	7	2	1	
	1			1	8	1	2	
Special Notes →					⑤			

⑤ Remove one turn from filament winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	5000Ω	3-4Ω	79B81-2	2U109	A-2935	AU-609	A-3825	22B58	S-5X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ADMIRAL PART No.	QUAM PART No.	NOTES
SP1	8"	PM	3-4Ω	78D135-8 ①	8A21PAZ3.6	① Used in Models CH21H32, 3, 4, CH21H41, 3, 4, CH21UH32, 3, 4, CH21UH41, 3, 4
SP2	5"	PM	6-8Ω	78B139-8 ①	5AIRZ7	② Used in Models CH21H41, 3, 4, CH21UH41, 3, 4 Two used in Models LH21H32, 5, LH21UH32, 5
SP3	5"	PM	6-8Ω	78B139-8 ①	5AIRZ7	③ Used in Models TH21H22, 3, TH21UH22, 3
	8"	PM		78B135-9 ②		④ Two used in Models CH52H72, 7, LH21H22, 3, 4, LH21UH22, 3, 4, LH52H51, 3, 4, LH52H62, 9
	6"	PM		78C134-6 ③		⑤ Two used in Models CH52H72, 7, LH21H22, 3, 4, LH21UH22, 3, 4, LH21H52, 5, LH21UH52, 5, LH52H51, 3, 4, LH52H62, 9
	6" x 9"	PM		78C138-5 ④		
	5"	PM		78B139-9 ⑤		

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA ADMIRAL PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1		93B5-4	K1616 ①		SD-91 ②		① Selenium Type. ② Silicon Type, 2 used

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ADMIRAL PART No. FUSE	ADMIRAL PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. [illegible]	BUSS PART No. FUSE	BUSS PART No. [illegible]
M2	N	1 1/4A 125V S/B			3331.25 (N-1 1/4A-125V-S/B)	346011	N 1 1/4	HN 3/4 to 1 1/4
	N	3/4A 125V S/B	84A13-38 ①	84A-12-13	333.750 (N-3/4A-125V-S/B)	[illegible]	N 3/4	HN 1/2 to 3/4
	N	1A 125V S/B	84A13-40 ①	84A12-14 or 84A12-12	333001 (N-1A-125V-S/B)	346011	N1	HN 3/4 to 1 1/4
M3	1" Length #26 Wire							

① Alternate Part Number.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA ADMIRAL PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M4	1N87G	1N87 or 1N87A	1N60	1N60	Video Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M5	Lamp		#1847
M6	Tuner	94E160-2	VHF with UHF provisions Ch. 20UB6C, 20UB6T
	Tuner	94D151-20	VHF with UHF provisions Ch. 20UB6CB, TB
	Tuner	94E160-1	VHF Ch. 20B6C, 20B6T
	Tuner	94D151-14	VHF Ch. 20B6CB, TB, 20E6C
	Tuner	94D151-13	VHF Ch. 20C6C
M7	Tuner	94D152-1	UHF Ch. 20UB6C, CB, 20UB6T, TB
M8	Switch	77A83-1	TV-Phono, DPDT (Slide Type)
	Printed Board	A7185-2	Video, Sound IF, Sync, Complete with Components (Less Tubes) Ch. 20C6C, 20UB6C, 20UB6T, 20B6C, 20B6T, 20B6CB, 20B6TB, 20UB6CB, 20UB6TB
	Printed Board	A7185-3	Video, Sound IF, Sync, Complete with Components, (Less Tubes) Ch. 20E6C

PARTS LIST AND DESCRIPTIONS (Continued)

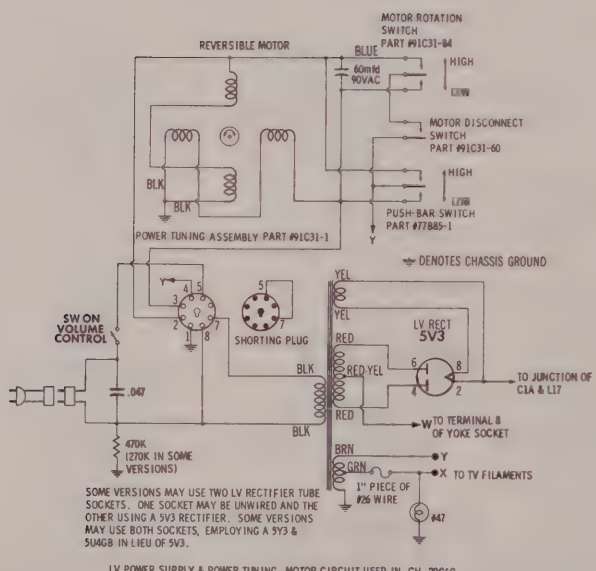
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

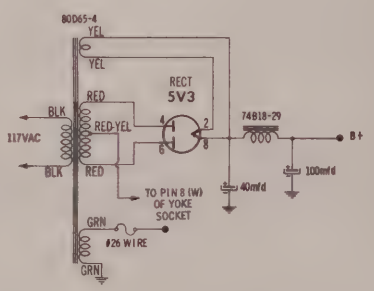
NAME	PART NO.	DESCRIPTION
Safety Glass	21D111-2	
Knob	33D231-13	VHF Channel Selector, UHF Fine Tuning
Knob	33C288-2	UHF Channel Selector
Knob	33C288-3	VHF Fine Tuning
Knob	20C22-2	Volume-Off-On, Vertical
Knob	33B289-1	Brightness, Bass
Knob	20C22-1	Contrast
Knob	20C22-3	Treble
Dial Screen	32B399-1	
Cabinet	35E444-2	Mahogany, with swivel, Models CH21H32, CH21UH32
Cabinet	35E444-3	Blond, with swivel, Models CH21H33, CH21UH33
Cabinet	35E444-4	Sierra, with swivel, Models CH21H34, CH21UH34
Cabinet	35E442-1	Walnut, Models CH21H41, CH21UH41
Cabinet	35E442-3	Blond, Models CH21H43, CH21UH43
Cabinet	35E442-4	Sierra, Models CH21H44, CH21UH44
Cabinet	35E457-2	Mahogany, Model CHS21H72
Cabinet	35E457-7	Cherry, Model CHS21H77
Cabinet	35E441-2	Mahogany, with legs, Models LH21H22, LH21UH22
Cabinet	35E441-3	Blond, with legs, Models LH21H23, LH21UH23
Cabinet	35E441-4	Sierra, with legs, Models LH21H24, LH21UH24
Cabinet	35E455-2	Mahogany, Models LH21H32, LH21UH32
Cabinet	35E455-5	Maple, Models LH21H35, LH21UH35
Cabinet	35E472-1	Walnut, Model LHS21H51
Cabinet	35E472-3	Blond, Model LHS21H53
Cabinet	35E472-4	Sierra, Model LHS21H54
Cabinet	35E460-2	Mahogany, Model LHS21H62
Cabinet	35E460-9	Fruitwood, Model LHS21H69
Cabinet	34E135-3	Mahogany, Models TH21H22, TH21UH22
Cabinet	34E135-4	Blond, Models TH21H23, TH21UH23
Legs	35E441-52	Includes Brass Ferrule, Models LH21H22, LH21UH22
Legs	35E441-53	Includes Brass Ferrule, Models LH21H23, LH21UH23
Legs	35E441-54	Includes Brass Ferrule, Models LH21H24, LH21UH24

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



LV POWER SUPPLY & POWER TUNING MOTOR CIRCUIT USED IN CH. 20C6C



ALTERNATE POWER SUPPLY USED IN CH. 20UB6C, CB, T, TB

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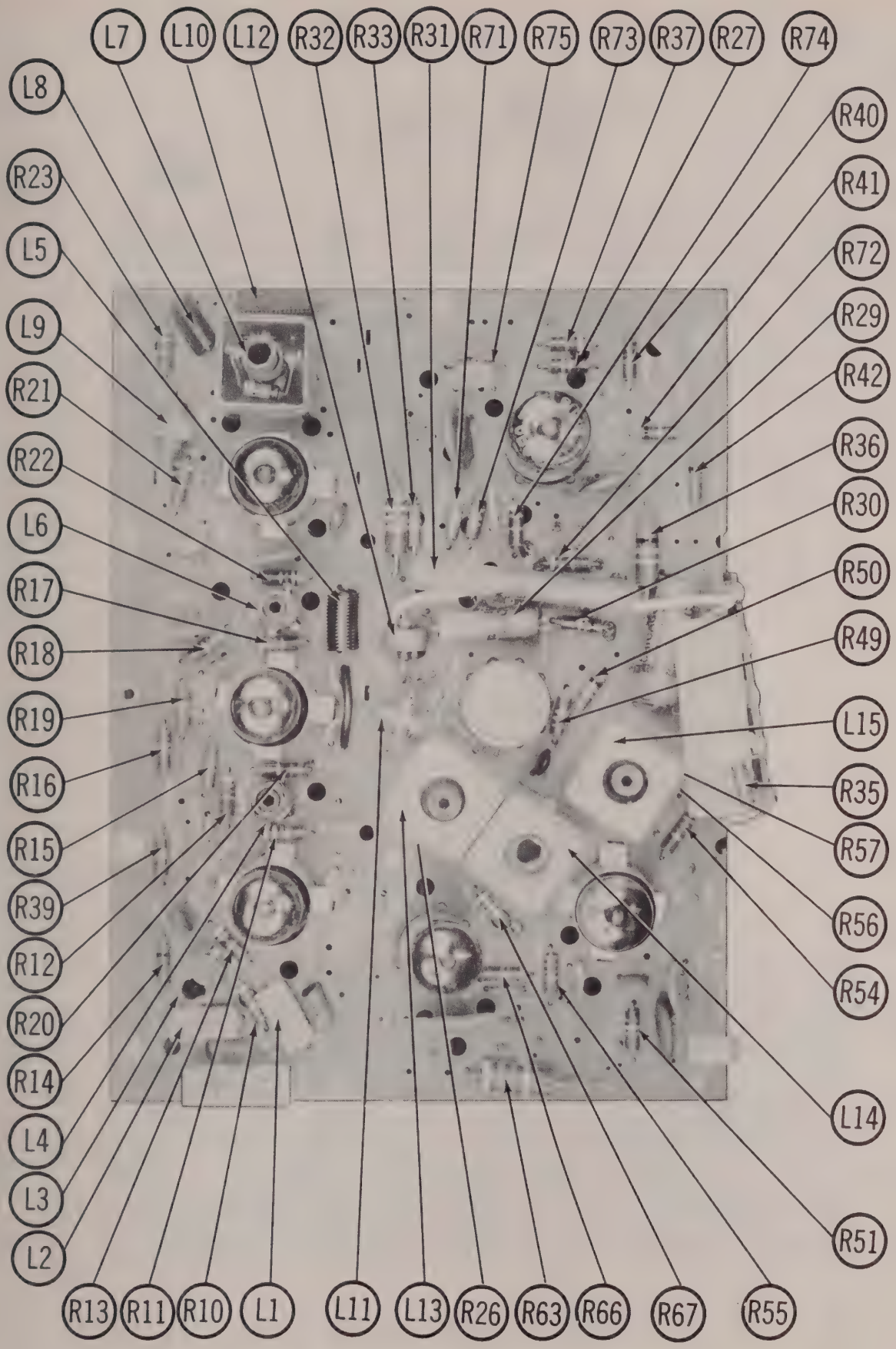
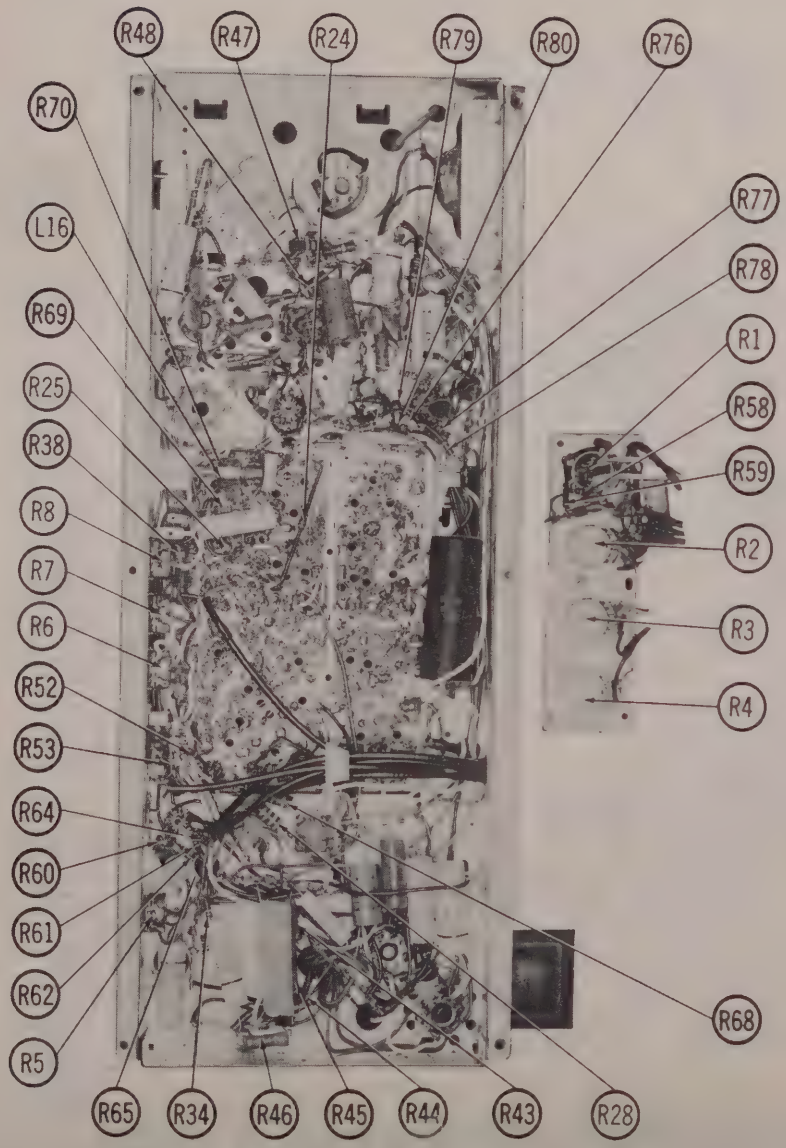
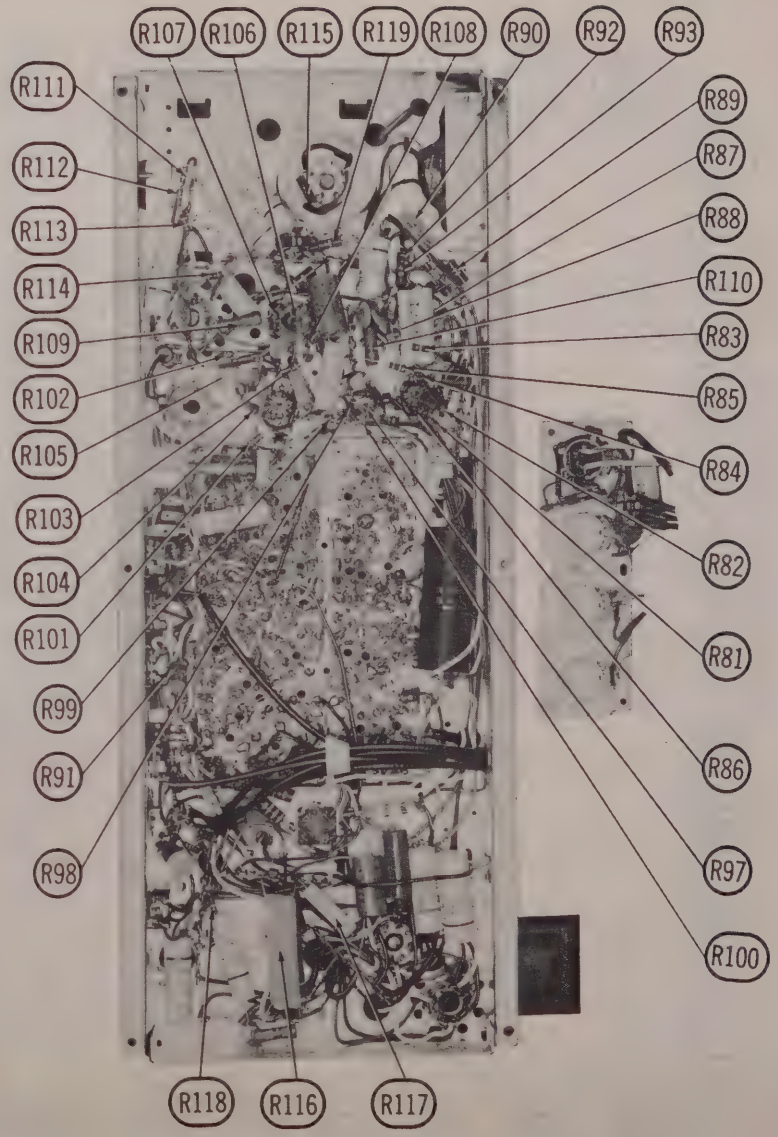
ALTERNATE SCHEMATIC



PRINTED BOARD - RESISTOR, INDUCTOR IDENTIFICATION

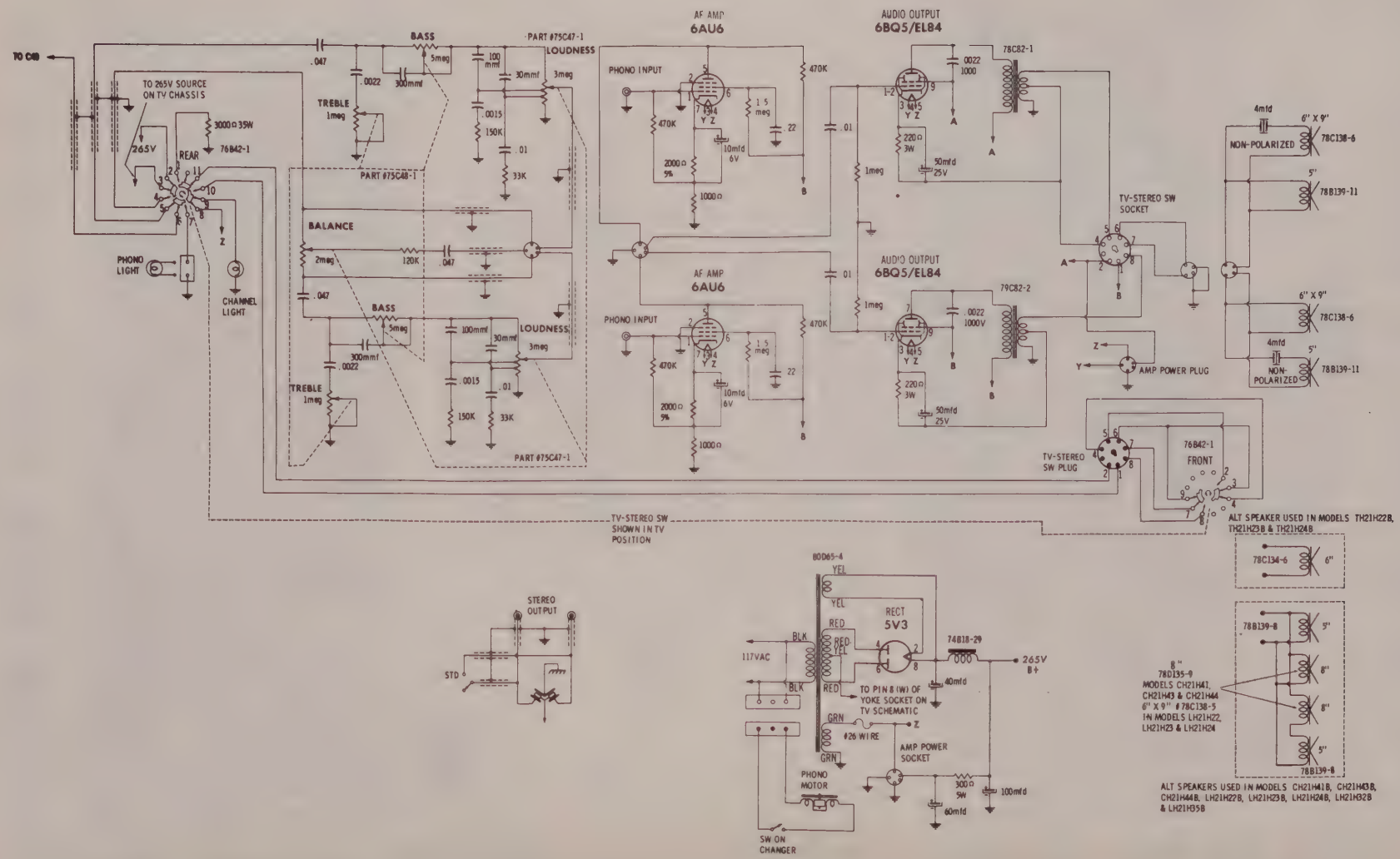


(R1 - R80)



(R81 - R119)

CHASSIS BOTTOM VIEW - RESISTOR IDENTIFICATION



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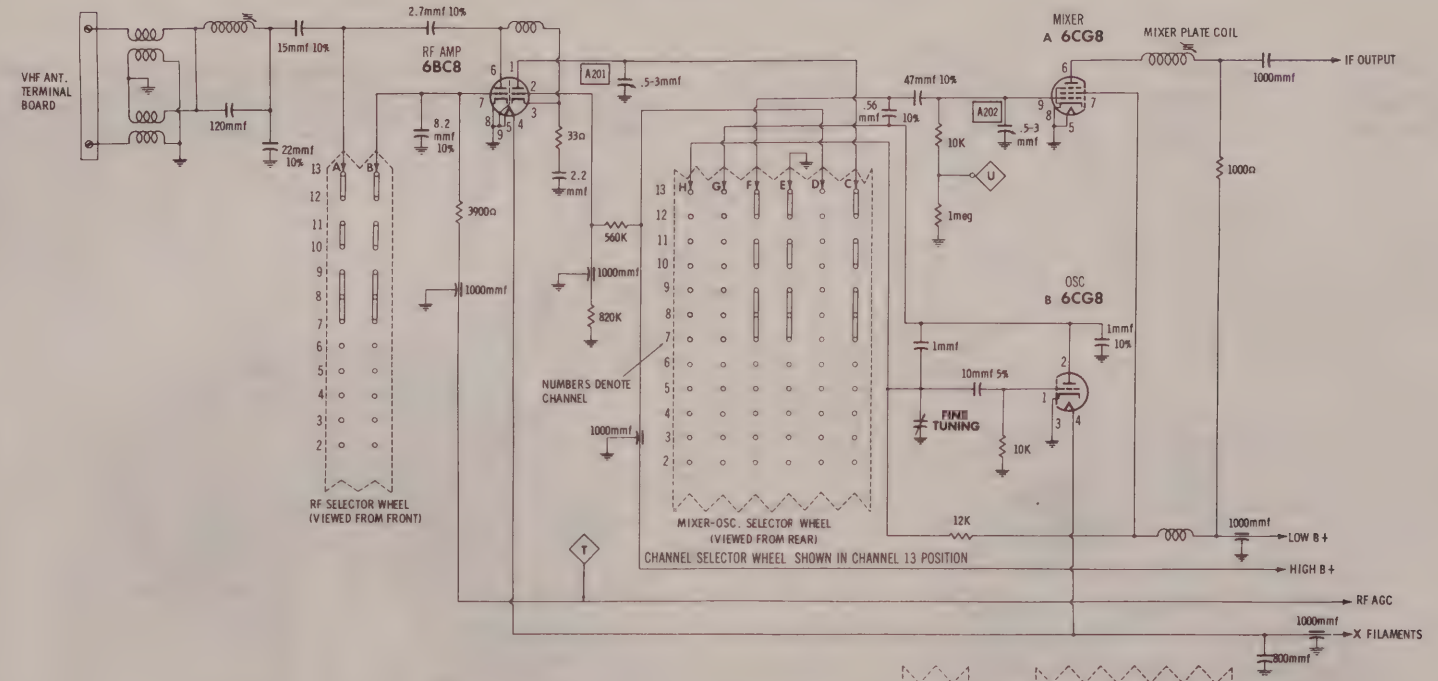
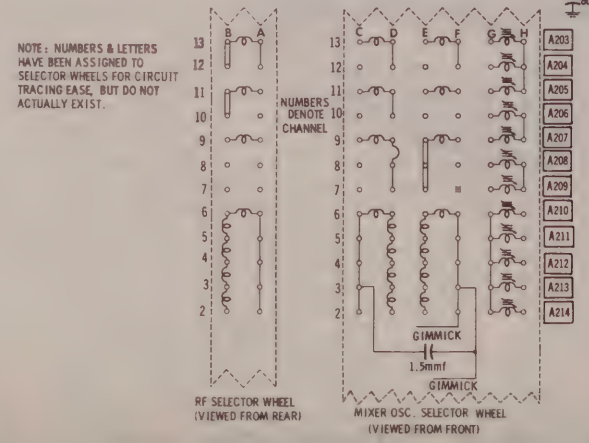
POWER SUPPLY & AMPLIFIER CH. 4C3 USED IN CH. 20E6C

TUNER 94E160-2 ROTOR





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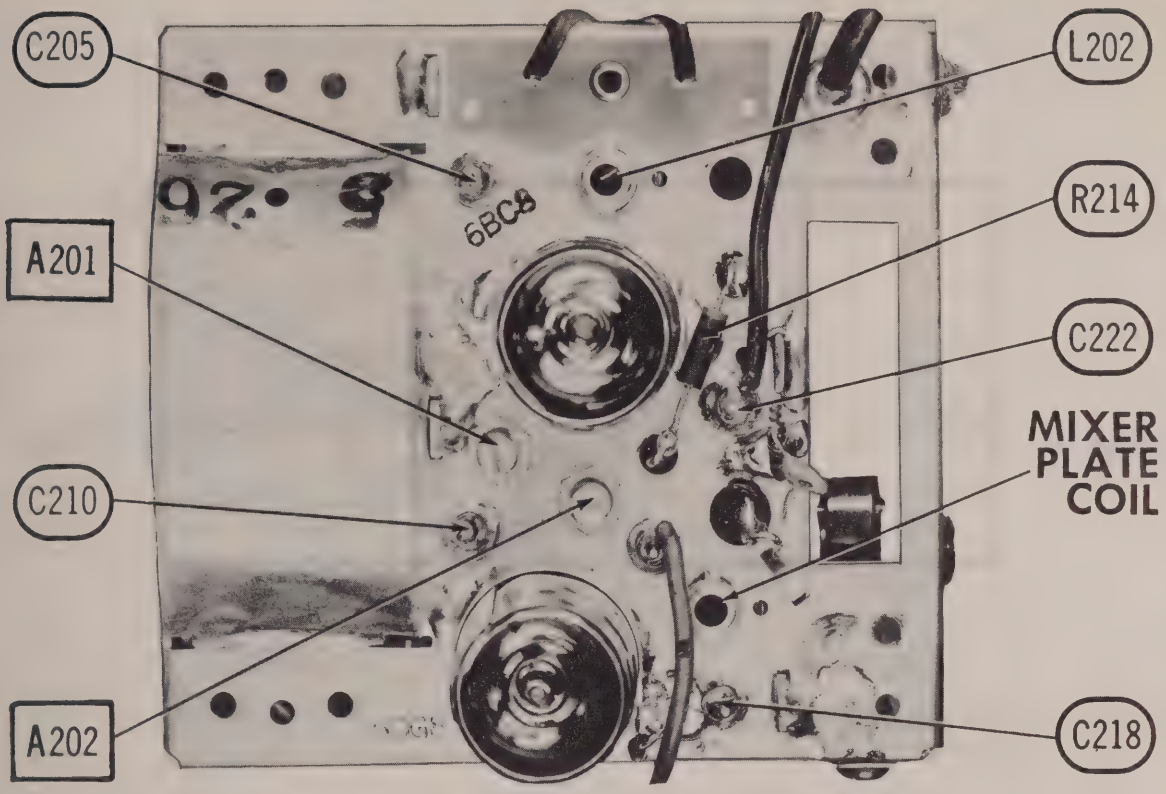
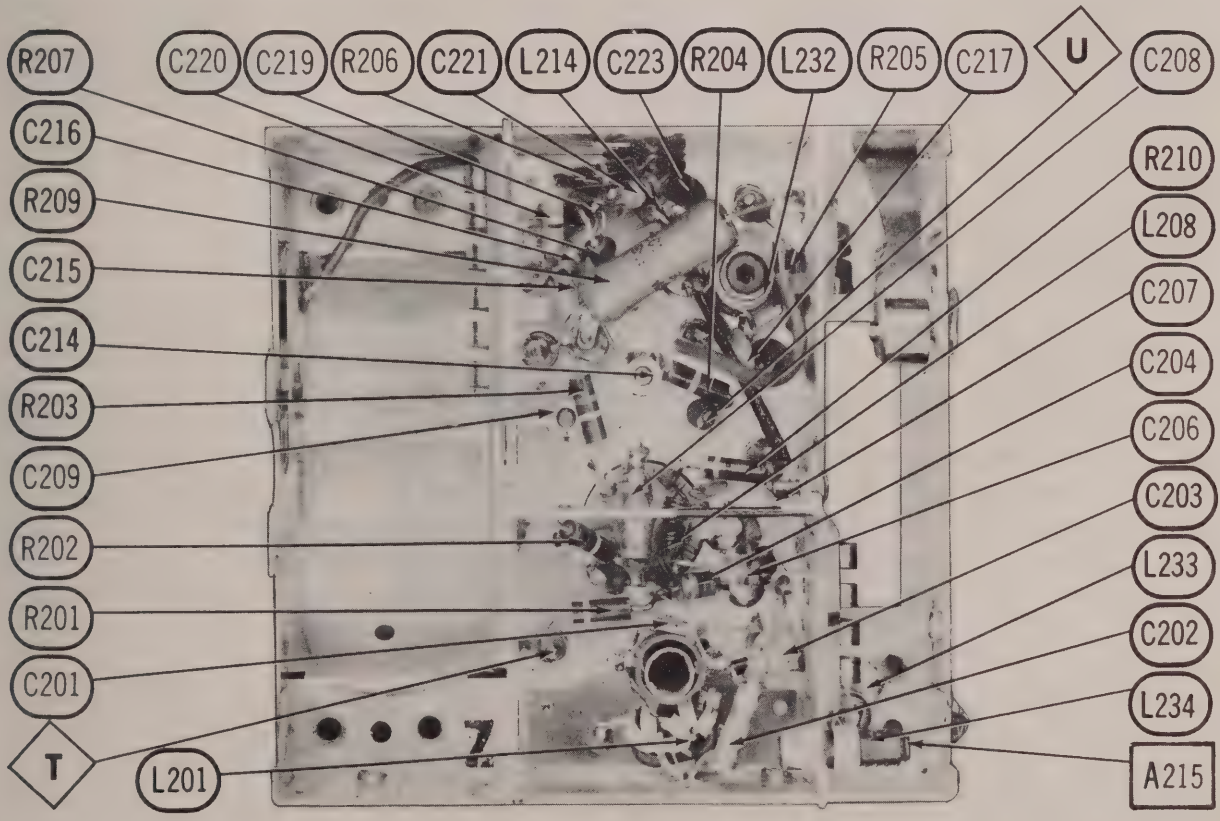
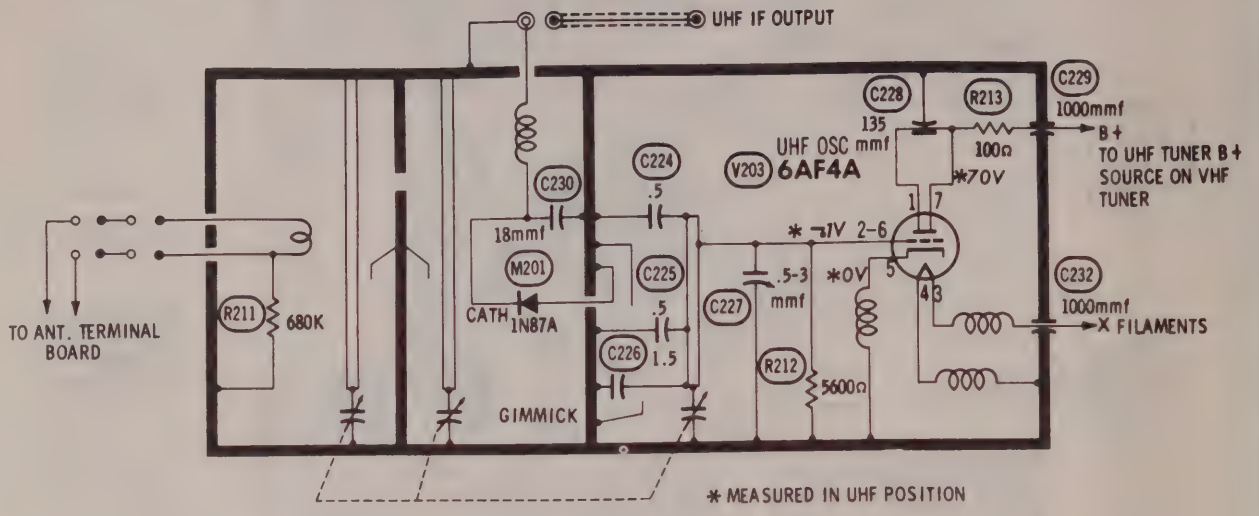
VHF TUNER 94E160-1



TUNER 94E160-2 - TOP VIEW



TUNER 94E160-2 - BOTTOM VIEW



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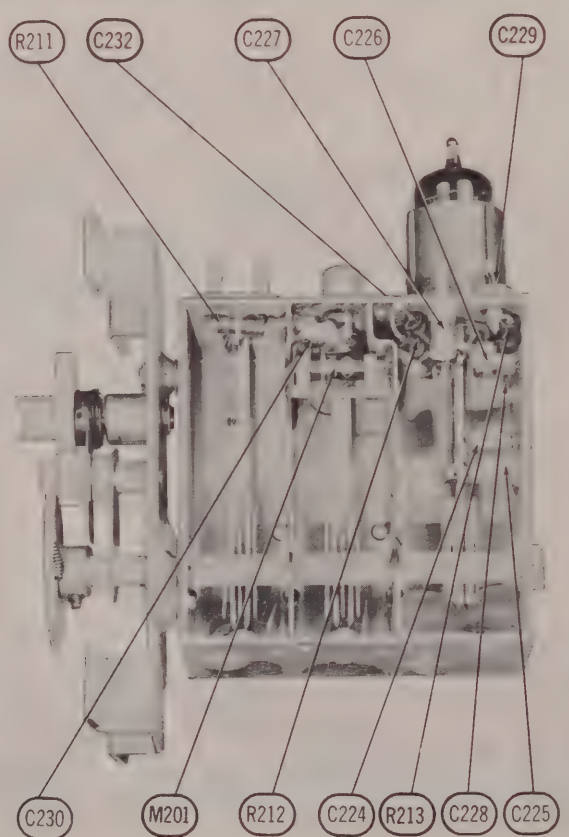
UHF TUNER 94D162-1



TUNER 94D162-1

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER to PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools: A1, A2 ..... General Cement #5000, 5003, 8276 or 8290
Walsco #2512 or 2525
A3 thru A11... General Cement #8282, 8606, 8606L or 9295
Walsco #2543, 2544 or 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 3.5 volt bias supply thru a 10K resistor to point Ⓐ.
Connect positive lead to chassis.
Turn super range finder control fully clockwise.
Connect a 270mmf capacitor across the VTVM test leads. Use the lowest scale on the VTVM. While peaking the adjustments, keep reducing the signal generator to keep the VTVM reading no higher than -1 volt DC.
Connect a short across the antenna terminals.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	41.25MC (Unmod)	12	DC probe thru 47K to point Ⓑ. Common to chassis. (Across video det. load).	A1	Adjust for MINIMUM deflection.
2.	"	"	47.25MC	"	"	A2	"
3.	"	"	42.3MC	"	"	A3	Adjust for maximum deflection.
4.	"	"	45.3MC	"	"	Mixer Plate Coil & A4	"
5.	"	"	41.5MC	"	"	A5	"
6.	"	"	42.0MC	"	"	A6	"
7.	"	"	43.5MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Leave the super range finder control fully clockwise.
Connect a 270mmf capacitor across the input leads of the scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	44.0MC (10MC Swp)	41.25MC 42.0MC 43.5MC 45.0MC 45.75MC 47.25MC	12	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis. (Across video det. load).		Check for response similar to Fig. 1 with markers as indicated. If curve does not resemble Fig. 1, repeat "Video IF Alignment".
9.	"	"	"	45.0MC	"	"		Connect a short, heavy, solid jumper across L3. Response curve should be similar to Fig. 2. If the 45.0MC marker does not fall on the peak adjust the mixer plate coil slug until it does. Remove the short and repeat step 3 of the "Video IF Alignment". Recheck step 8 above.

SOUND IF ALIGNMENT

Tune in the strongest TV signal available in the area. Adjust the set for normal operation. Turn the super range finder control fully counter clockwise.
Using a hexagonal non-metallic alignment tool, turn A8 slowly clockwise until a buzz is heard in the sound. Then turn counter clockwise for maximum undistorted sound. (There may be two points approximately ½ turn apart at which the sound is loud. Use the one with the slug the farthest clockwise.
Reduce the signal at the antenna terminals (by use of an adjustable attenuator or disconnecting the antenna) until a strong hiss similar to super regeneration is heard in the sound.
Carefully adjust A9 for maximum undistorted sound with MINIMUM hiss. If the hiss disappears during alignment, further reduce the signal until the hiss returns, then readjust A9.
Carefully adjust A10 for MINIMUM 4.5MC beat pattern in the picture. 4.5MC beat interference appears as a very fine cross hatch pattern on the screen.
Carefully adjust A11 for maximum undistorted sound with MINIMUM hiss. If the hiss disappears during alignment, further reduce the signal strength. Readjust A11.
Repeat entire procedure, if necessary. DO NOT RETOUCH A9 WITHOUT REPEATING ALL OF SOUND ALIGNMENT.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 7 & 8.

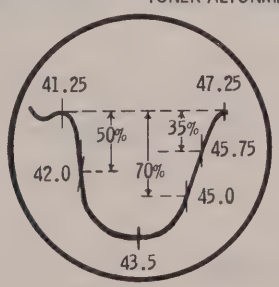


FIG.1

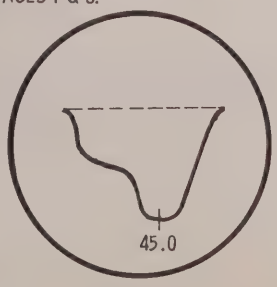


FIG.2

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	150K	47Ω	0Ω	.1Ω	††470Ω	††470Ω	0Ω		
V2	6BZ6	110K	††68Ω	.1Ω	0Ω	†470Ω	†470Ω	130K		
V3	6CB6	.1Ω	330Ω	.1Ω	0Ω	†6500Ω	†6500Ω	0Ω		
V4	6AW8A	0Ω	100K	†47K	0Ω	.1Ω	●28Ω	3300Ω	†9200Ω	†5200Ω
V5	6BU8	†11K	†10K	2.3meg	.1Ω	0Ω	●†14K	●†410K	†32K	4.7meg
V6	6DT6	15.5Ω	680Ω	.1Ω	0Ω	†780K	†14K	560K		
V7	6AV6	1meg	390Ω	0Ω	.1Ω	0Ω	0Ω	†230K		
V8	6AQ5A	470K	330Ω	0Ω	.1Ω	†745Ω	†470Ω	470K		
V9	6CG7	● 1.3meg	220K	●100K	0Ω	.1Ω	†12K	1.7meg	3300Ω	0Ω
V10	6DB5	†27K	● 500Ω	2.2meg	0Ω	.1Ω	2.2meg	● 500Ω	NC	†770Ω
V11	6CG7	†10K	3.2meg	1200Ω	.1Ω	0Ω	†82K	47K	1200Ω	0Ω
V12	6CD6GA	TP	0Ω	0Ω	NC	470K	TP	.1Ω	†12K	TOP CAP †9Ω
V13	6AU4GTA	NC	NC	¶ 700K	NC	†0Ω	NC	.1Ω	0Ω	
V14	1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP †469Ω
V15	5Y3GT	NC	¶	NC	15Ω	NC	17Ω	NC	¶	
V16	5U4GB	NC	¶	NC	15Ω	NC	17Ω	NC	¶	
V17	21DEP4A	0Ω	39K	†120K	†150K	NC	NC	●105K	.1Ω	
V201	6BC8	†2200Ω	380K	INF	.1Ω	0Ω	INF	3.8meg	0Ω	0Ω
V202	6CG8A	10K	†17K	0Ω	.1Ω	0Ω	†6700Ω	†5700Ω	0Ω	1.1meg
V203	6AF4A	†•10K	•5600Ω	.2Ω	.1Ω	.1Ω	•5600Ω	†•10K		
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

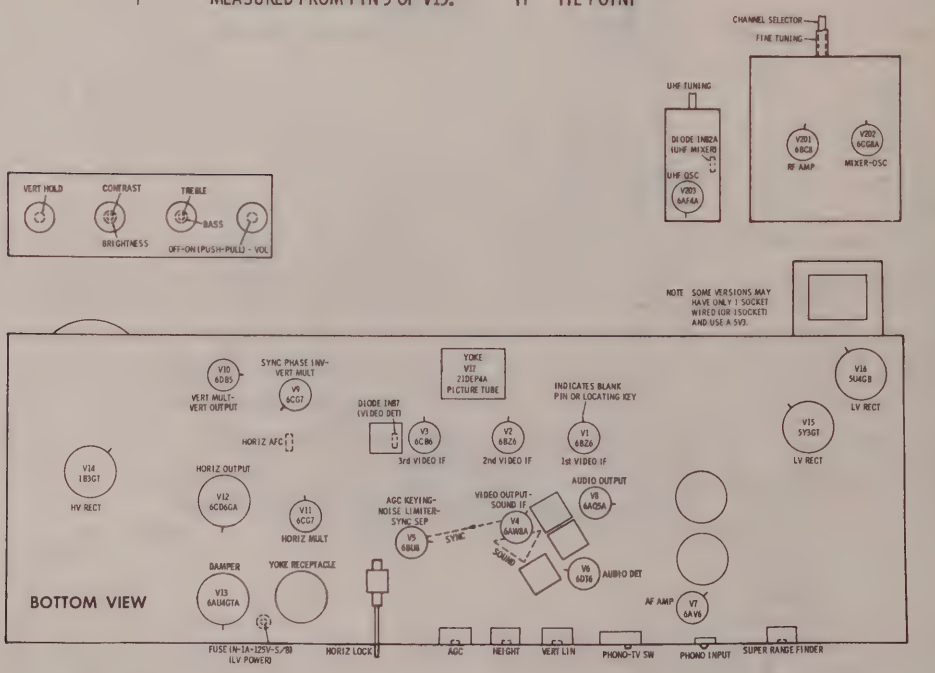
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

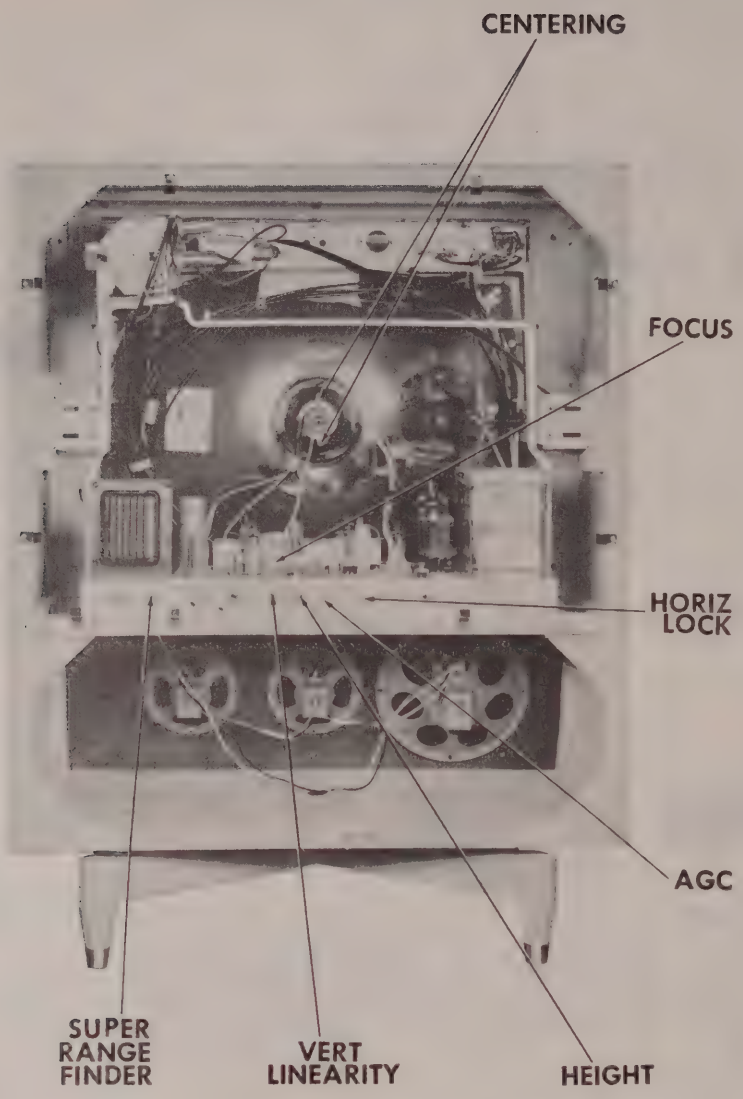
• MEASURED IN "UHF" POSITION. †† MEASURED FROM PIN 7 OF V2.

† MEASURED FROM 265V SOURCE. NC NO CONNECTION.

‡ MEASURED FROM PIN 3 OF V13. TP TIE POINT



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Brightness and Contrast for a normal picture.

Turn the Horizontal Hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

Turn the Horizontal Hold slowly counterclockwise until the picture just falls into sync.

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

ANDREA MODELS C-VQ21-110, LB-VQ21-110, MC-VQ21-110, MLB-VQ21-110, 2LB-VQ21-110 (Ch. VQ21-110)

ANDREA MODELS C-VQ21-110, LB-VQ21-110, MC-VQ21-110, MLB-VQ21-110, 2LB-VQ21-110 (Ch. VQ21-110)

MODEL MLB-VQ21-110 (CH. VQ21-110)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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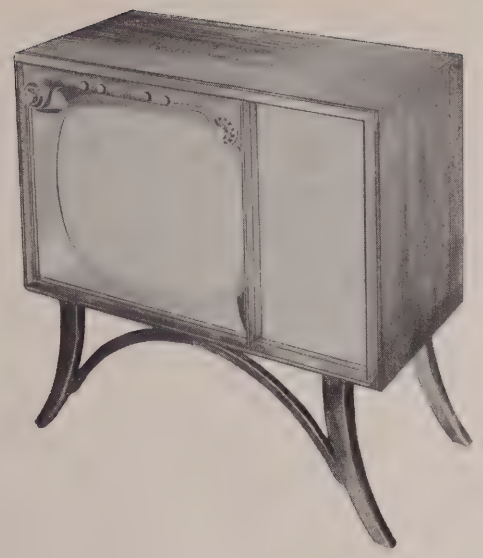
SET 431 FOLDER 2

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 push-on type knobs from the front.
2. Remove 11 wood screws holding rear cover. Remove the rear cover.
3. Remove speaker leads.
4. Remove 2 metal bolts holding top chassis brace to cabinet.
5. Remove 5 bottom chassis bolts.
6. Remove chassis.



MODEL MLB-VQ21-110 (CH. VQ21-110)

TRADE NAME	Andrea	MODELS	CHASSIS
		C-VQ21-110, LB-VQ21-110, MC-VQ21-110, MLB-VQ21-110, 2LB-VQ21-110	VQ21-110
MANUFACTURER	Andrea Radio Corp., 27-01 Bridge Plaza North, Long Island City, N. Y.		
TUBES	Twenty-four		
POWER SUPPLY	110-120 Volts AC, 50/60 Cycle	RATING 270 Watts, 2.4 Amp. @ 117 Volts AC, 60 Cycle	
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the Channel Selector and Fine Tuning knobs. Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, as the Channel Selector is rotated. Adjust for best picture and sound.

SAFETY GLASS REMOVAL

Remove 8 push-on type knobs from the front. Remove 2 wood screws holding safety glass retainer panel. Tilt glass out and lift up to remove.

SPECIAL ADJUSTMENTS

A. AGC
No provision is made to vary the AGC on this receiver.

B. Focus
No provision is made to vary the Focus on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the Horizontal Multivibrator, it is necessary to remove the rear cover and supply power to set. Set the Horizontal Hold at the center of its range and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Ratio Detector secondary (A7) located on bottom of chassis.

FUSE

Two fuses are used. One for horizontal sweep circuit protection and one for low voltage power supply protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

ANDREA MODELS C-VQ21-110, LB-VQ21-110, MC-VQ21-110, MLB-VQ21-110, 2LB-VQ21-110 (Ch. VQ21-110)

SET 431 FOLDER 2

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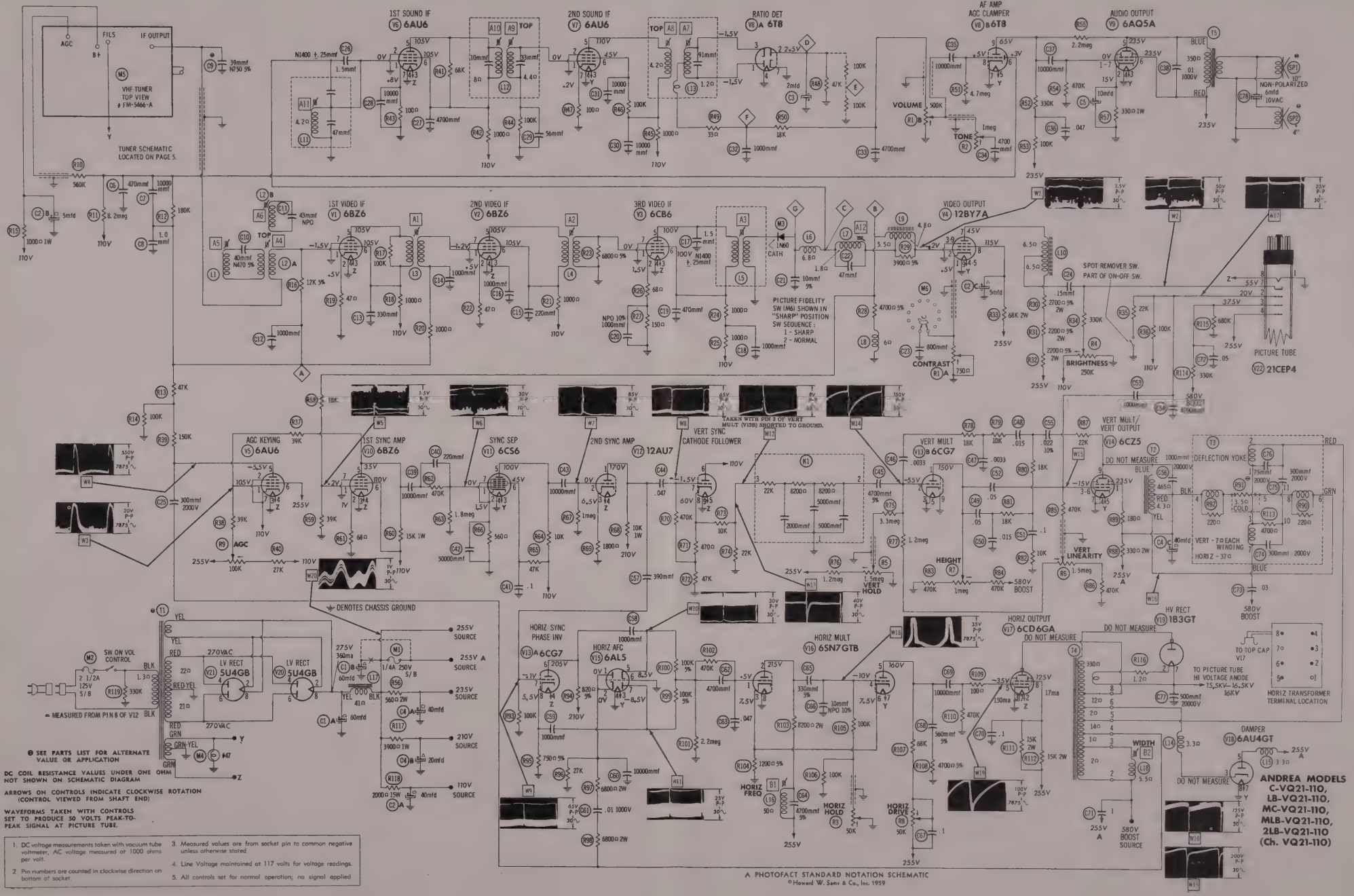
H981


1ST SOUND IF V6 6AU6
2ND SOUND IF V7 6AU6
RATIO DET V8A 6T8
AF AMP AGC CLAMPER V8B 6T8
AUDIO OUTPUT V9 6AQ5A
VHF TUNER TOP VIEW # FM-5466-A
TUNER SCHEMATIC LOCATED ON PAGE 5.
1ST VIDEO IF V1 6BZ6
2ND VIDEO IF V2 6BZ6
3RD VIDEO IF V3 6CB6
VIDEO OUTPUT V4 12BY7A
VOLUME
TONE
CONTRAST
BRIGHTNESS 250K
SPOT REMOVER SW. PART OF ON-OFF SW.
PICTURE FIDELITY SW (M6) SHOWN IN "SHARP" POSITION SW SEQUENCE: 1 - SHARP 2 - NORMAL
PICTURE TUBE V22 21CEP4
AGC KEYING V5 6AU6
1ST SYNC AMP V10 6BZ6
SYNC SEP V11 6CS6
2ND SYNC AMP V12 12AU7
VERT SYNC CATHODE FOLLOWER
VERT MULT V13B 6CG7
VERT MULT/VERT OUTPUT V14 6CZ5
HEIGHT
VERT LINEARITY
VERT HOLD
DEFLECTION YOKE
VERT - 70 EACH WINDING
HORIZ - 37 Ω
HV RECT V19 1B3GT
HORIZ SYNC PHASE INV V13A 6CG7
HORIZ AFC V15 6AL5
HORIZ MULT V16 6SN7GTB
HORIZ OUTPUT V17 6CD6GA
DAMPER V18 6AU4GT
WIDTH
HORIZ FREQ
HORIZ HOLD
HORIZ DRIVE
TO TOP CAP V17
TO PICTURE TUBE HI VOLTAGE ANODE 15.5KV-16.5KV 16KV
HORIZ TRANSFORMER TERMINAL LOCATION
DO NOT MEASURE
TAKEN WITH PIN 2 OF VERT MULT (V13B) GROUNDED.
DENOTES CHASSIS GROUND
SW ON VOL CONTROL
LV RECT 5U4GB V21
LV RECT 5U4GB V20
MEASURED FROM PIN 8 OF V12
255V SOURCE
255V A SOURCE
235V SOURCE
210V SOURCE
110V SOURCE
580V BOOST SOURCE
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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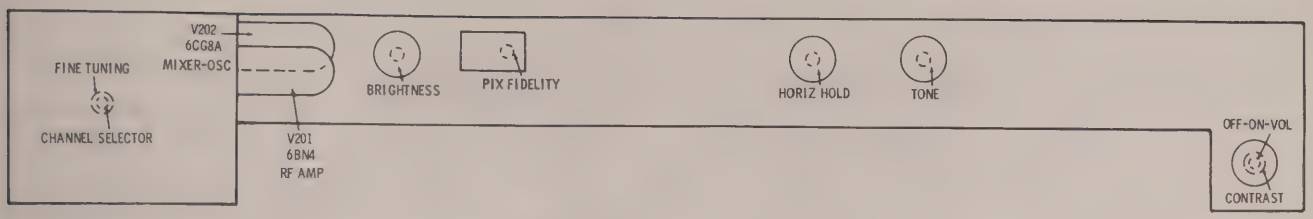
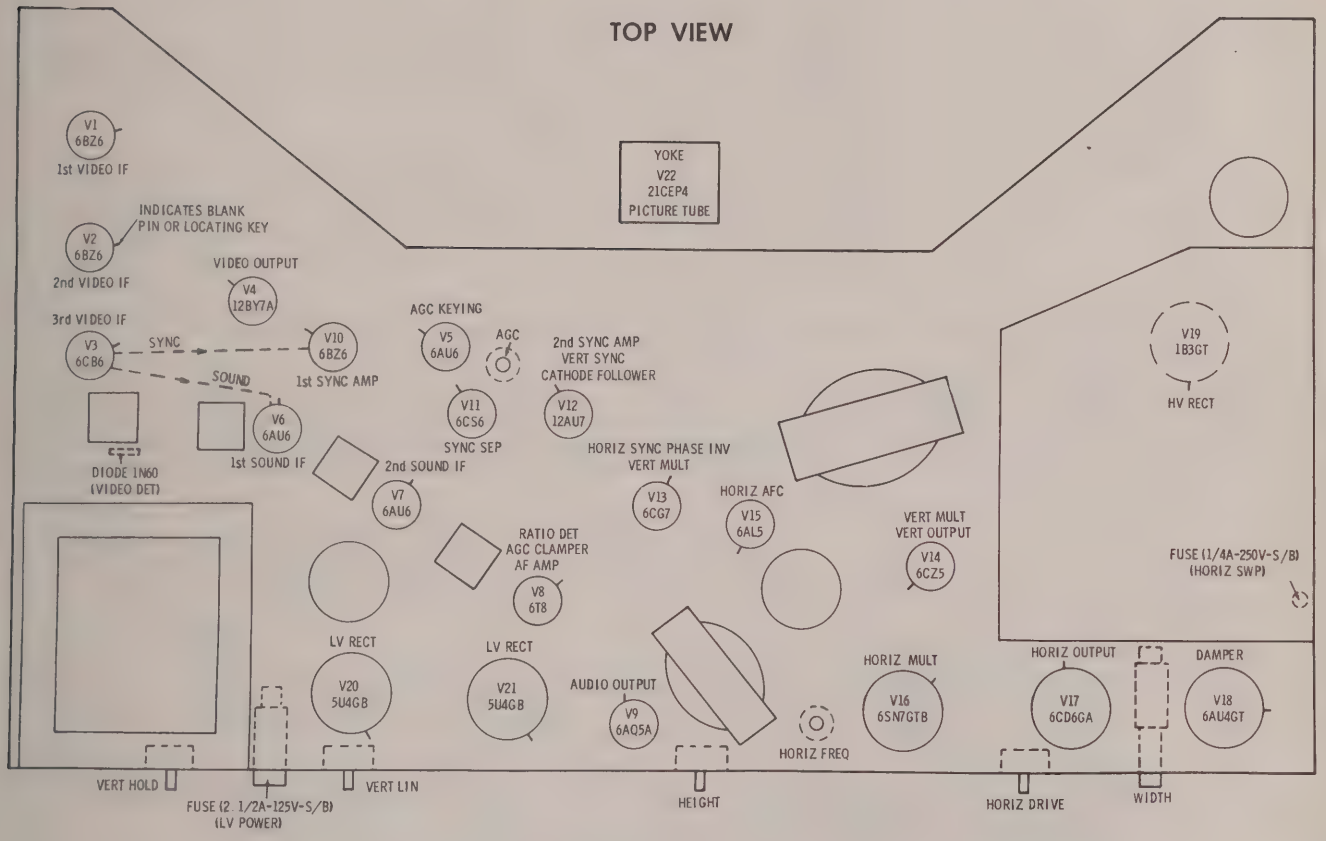
ANDREA MODELS C-VQ21-110, LB-VQ21-110, MC-VQ21-110, MLB-VQ21-110, 2LB-VQ21-110 (Ch. VQ21-110)

TUBE PLACEMENT CHART





TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (2½A), V20, V21

SWEEP FAILURE
No raster, has sound V15, V16, V17, Fuse (1/4A), V18, V19, V22
No vertical deflection V13, V14
Poor vert. linearity or foldover V13, V14
Poor horiz. linearity or foldover V16, V17, V18
Narrow picture V16, V17, V18, V20, V21
Vert. off freq. V13, V14
Horiz. off freq. V16

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.)
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V22
Has pic, no sound V6, V7, V8, V9
Overloaded picture V5, V8

SYNC FAILURE
No vert. sync V10, V11, V12
No horiz. sync V10, V11, V12, V13, V15
No vert. or horiz. sync V10, V11, V12

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools: A1 thru A12 ....General Cement #8606, 8606L, 8282, 9295
Walsco #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point (A). Positive to chassis.
Attenuate sweep generator to maintain between 2 and 3 volts peak to peak on scope throughout alignment.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001mfd	High side to pin 1 (grid) of 1st Video IF (V1). Low side to chassis.	44.0MC (10MC Swp)	42.5MC 45.25MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 10K to point (B). Low side to chassis. (Across Video Det. load)	A1, A2, A3	Disconnect L2 from pin 1 (grid) of 6BZ6 (V1). Adjust A1 to place 45.75MC marker at 35% on curve as in Fig. 1. Adjust A2 for maximum gain and proper bandwidth. 42.5MC marker should be at 20% on curve. Adjust A3 for flat topped response(if two points are found to flatten this curve use the first peak). Repeat these adjustments. Reconnect L2 to V1.
2.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	41.25MC 42.5MC 45.25MC 45.75MC 47.25MC	"	"	A4, & Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. (If two peaks occur while adjusting A4, use one nearest chassis).
3.	"	"	"	47.25MC	"	"	A5	Adjust to position marker as in Fig. 2.
4.	"	"	"	41.25MC	"	"	A6	Adjust to position marker as in Fig. 2. Repeat steps 2, 3 and 4.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point (D) to chassis. The junction of these two resistors is alignment point (E) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.005mfd	High side to point (C). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point (D). Common to chassis.	A7, A8, A9, A10	Use only enough generator output not to exceed -8 volts on VTVM. Adjust for maximum deflection.
6.	"	"	"	"	DC probe to point (E). Common to point (F).	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

Connect the negative lead of a 12 volt bias supply to point (A). Positive to chassis.
Turn Contrast control fully counterclockwise.
Connect clip lead between point (G) and chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.005mfd	High side to pin 2 (grid) of 12BY7 (V4). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point (D). Common to chassis.	A12	Use only enough generator output not to exceed -8 volts on VTVM. Adjust A12 for MINIMUM deflection.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 7.

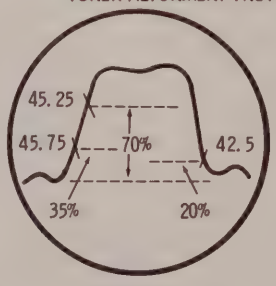
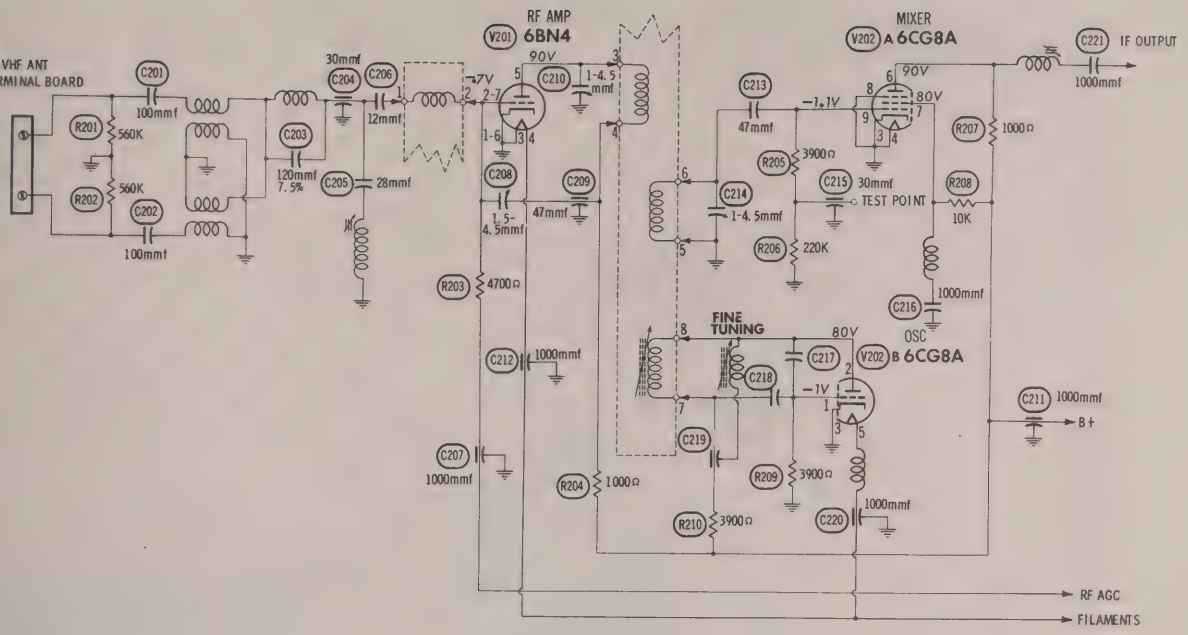


FIG.1

FIG.2



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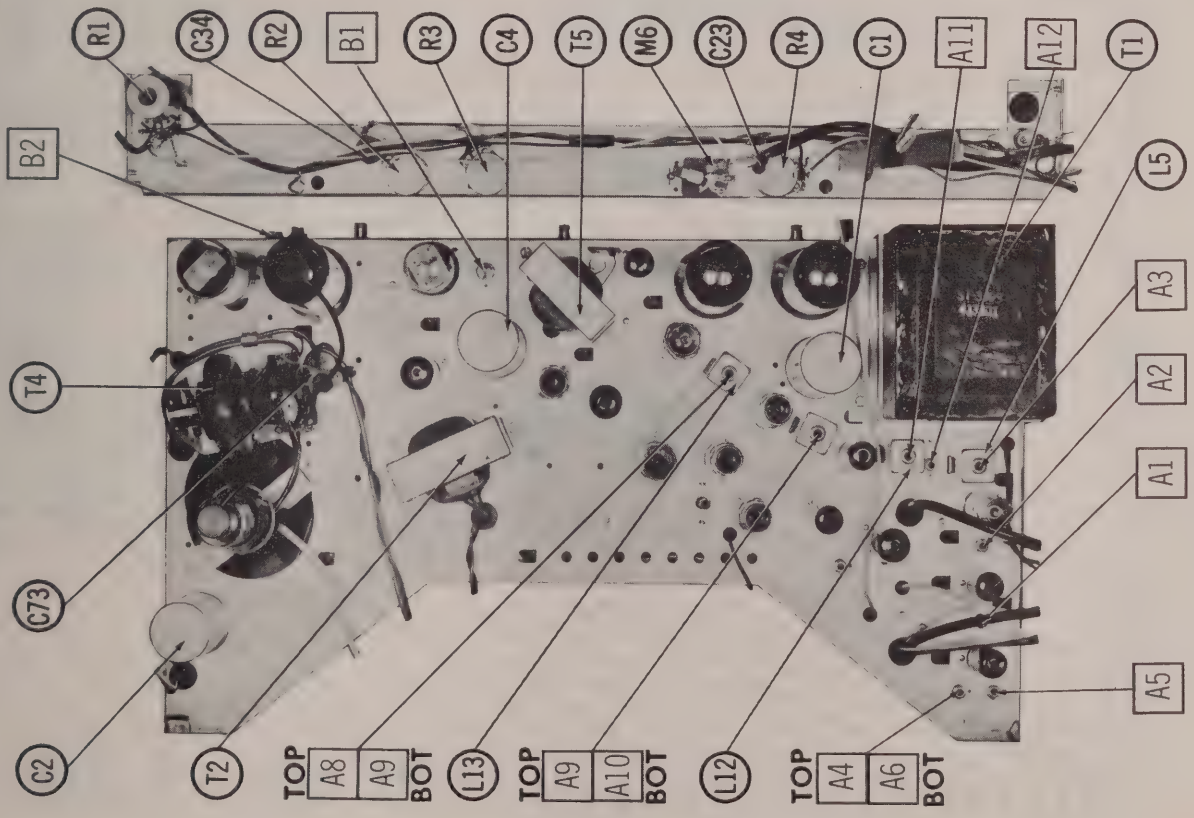
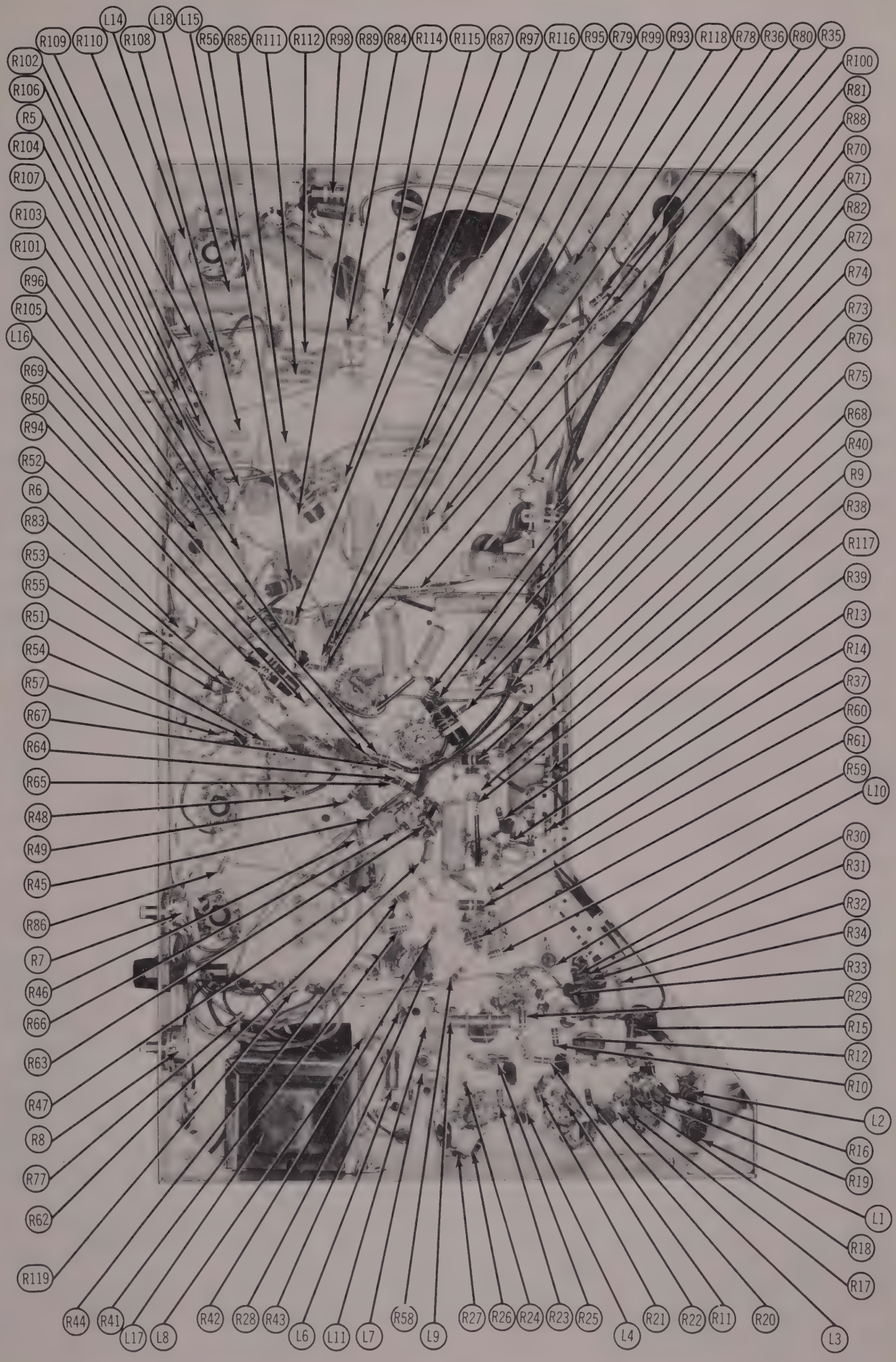
VHF TUNER FM-5466-A



CHASSIS-TOP VIEW



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

ANDREA MODELS C-VQ21-110, LB-VQ21-110, MC-VQ21-110, MLB-VQ21-110, 21B-VQ21-110 (Ch. VQ21-110)

TUNER PARTS LIST AND DESCRIPTIONS

FM-5466-A

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6CG8A	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ANDREA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	100		HCC-1922	SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C202	100		HCC-1922	SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C203	120				DTZ-120		CNO-312	5GA-T12S 5% *	7.5%
C204	30								
C205	28								
C206	12								
C207	1000			EF-001	MFT-1000			503C-D1	
C208	1.5-4.5				829-6				
C209	47								
C210	1-4.5				829-6				
C211	1000			EF-001	MFT-1000			503C-D1	
C212	1000			EF-001	MFT-1000			503C-D1	
C213	47								
C214	1-4.5				829-6				
C215	30								
C216	1000			DI-1000	DD-102	LT10D1	B-210	5GA-D1	
C217									
C218									
C219									
C220	1000			EF-001	MFT-1000			503C-D1	
C221	1000			DI-1000	DD-102	LT10D1	B-210	5GA-D1	

* Not normally in distributors stock. Available through distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ANDREA PART No.	NOTES
	OHMS	WATT		
R201	560K			
R202	560K			
R203	4700Ω			
R204	1000Ω			
R205	3900Ω			

ITEM No.	RATING		ANDREA PART No.	NOTES
	OHMS	WATT		
R206	220K			
R207	1000Ω			
R208	10K			
R209	3900Ω			
R210	3900Ω			

TUNER ALIGNMENT INSTRUCTIONS

VHF OSCILLATOR ALIGNMENT

Suggested alignment tools: General Cement #8607, 9291
Walsco #2520, 2522, 2523, 2524, 2537
Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, as the Channel Selector is rotated. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st Video IF	6BZ6	
V2	2nd Video IF	6BZ6	
V3	3rd Video IF	6CB6	
V4	Video Output	12BY7A	
V5	AGC Keying	6AU6	
V6	1st Sound IF	6AU6	
V7	2nd Sound IF	6AU6	
V8	Ratio Det. -AGC Clamper-AF Amp.	6T8	
V9	Audio Output	6AQ5A	
V10	1st Sync Amp.	6BZ6	
V11	Sync Sep	6CS6	

ITEM No.	USE	TYPE	NOTES
V12	2nd Sync Amp. -Vert. Sync-Cathode Follower	12AU7	
V13	Horiz. Sync Phase Inv. -Vert. Mult.	6CG7	
V14	Vert. Mult. -Vert. Output	6CZ5	
V15	Horiz. AFC	6AL5	
V16	Horiz. Mult.	6SN7GTB	
V17	Horiz. Output	6CD6GA	
V18	Damper	6AU4GT	
V19	HV Rect.	1B3GT	
V20	LV Rect.	5U4GB	
V21	LV Rect.	5U4GB	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	ANDREA PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V22	21CEP4		21CEP4 ①	21CEP4 ②	① "Silverama" ⑧ ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ANDREA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲60	450	HCE-1348	AFH2-61-50	B0464	FP242.5	TMS-59	D-240	TVL-2772
B	▲60	450					TD-50-450	MT-4520	
C2A	▲40	450	HCE-1350	AFH3-41	C0320	FP398.2	TMT-36	S-300	TVL-3783
B	▲5	450						MTD-4508	
C	▲5	450							
C3	2	50	HCE-1351	PRS50V2	BBR2-50	TC302	TD-2-50	MT-0502	TVA-1301
C4A	▲40	450	HCE-1359	AFH3-43-50	C0344	FP376.9	TMT-39	D-235	TVL-3786
B	▲20	450						MT-4520	
C	▲40	450							
C5	10	25	HCE-1352	PRS25V10	BBR10-25	TC22	TD-10-25	MT-0210	TVA-1204
C7B	6	10VAC			BBR12-150 † BBR12-150 †	TC105	TD-12-150 † TD-12-150 †	MT-1512 † MT-1512 †	

† Connect negative leads together.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ANDREA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	470		HCC-1948	SI 470	D6-47I	LT6T47	UC-5347	5GA-T47	
C7	10000		HCC-1970	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C8	1.0	100	HCT-1027-1	P288N-1.0		CUB2W1	GEM-21	2TM-M1	
C9	39						CN7-439	5TCU-Q39S 5%*	N750 5% N470 5%
C10	40		HCC-1972						
C11	43			NPO-SI 43	TCZ-43	CTA6Q43C		5TCC-Q43S *	NPO
C12	1000		HCC-1969	SI 1000	D6-102	BYA6DI	UC-521	5HK-DI	
C13	330		HCC-1937	SI 330	D6-331	L10T33	UC-533	5GA-T33	
C14	1000		HCC-1969	SI 1000	D6-102	BYA6DI	UC-521	5TCC-DI	
C15	220		HCC-1966	SI 220	D6-221	L10T22	UC-5322	5GA-T22	
C16	1000		HCC-1969	SI 1000	D6-102	BYA6DI	UC-521	5HK-DI	
C17	1.5		HCC-1964						N1400 ±.25mmf
C18	1000		HCC-1969	SI 1000	D6-102	BYA6DI	UC-521	5HK-DI	
C19	470		HCC-1948	SI 470	D6-47I	L10T47	UC-5347	5GA-T47	
C20	1000		HCC-1969	SI 1000	D6-102	BYA6DI	B-210	5HK-DI	
C21	10		HCC-1965	NPO-SI 10	TCZ-10	CTA9Q1C	CNO-410	5TCC-Q1S 10% *	NPO 10%
C22	47				TCZ-47		CNO-447	5GA-Q47S 5% *	5%
C23	800		HCC-1971			L10T8		5GA-T8	
C24	.15	400	HCT-1046	P488N-15		CUB4P15	GEM-4015	4TM-P15	
C25	300	2000	HCM-1649	1467LS-HV300			MC-241	ZTM-33	
C26	1.5		HCC-1964						N1400 ±.25mmf
C27	4700		HCC-1952-1	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C28	10000		HCC-1970	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C29	56		HCC-1967	SI 56	D6-560	LT6Q56	UC-5456	5GA-Q56	
C30	10000		HCC-1970	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C31	10000		HCC-1970	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C32	1000		HCC-1969	SI 1000	D6-102	LT6DI	UC-521	5HK-DI	
C33	4700		HCC-1952-1	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C34	4700		HCC-1952-1	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C35	10000		HCC-1970	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C36	.047	400	HCT-1048	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C37	10000		HCC-1970	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C38	.01	1000	HCT-1009	P1088N-01	DF-403	CUB10SI	GEM-4011	10TM-SI	
C39	10000		HCC-1970	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C40	220		HCC-1966-1	SI 220	D6-221	LT6T22	UC-5322	5GA-T22	
C41	.1	400	HCT-1045	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C42	50000		HCC-1951	BPD-05	DF-503	CUB2S5	GEM-415	5HK-S5	
C43	10000		HCC-1970	BPD-01	DF-403	BYA10SI	B-110	5HK-SI	
C44	.047	400	HCT-1048	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C45	4700		HCM-1648	1464-0047		BYA10D47M		MS-247	5%
C46	.0033	400	HCT-1056	P488N-0033	DD-332	CUB4D33	GEM-4233	4TM-D33	
C47	.0033	400	HCT-1056	P488N-0033	DD-332	CUB4D33	GEM-4233	4TM-D33	
C48	.015	400	HCT-1023	P488N-015		CUB4S15	GEM-4115	4TM-S15	
C49	.05	400	HCT-1003	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C50	.015	400	HCT-1023	P488N-015		CUB4S15	GEM-4115	4TM-S15	
C51	.1	400	HCT-1058	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C52	.05	400	HCT-1003	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C53	1000		HCC-1969	SI 1000	DD-102	LT6DI	UC-521	5HK-DI	
C54	4700		HCC-1952-1	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C55	.022	400	HCT-1057					5BF-S22	10%
C56	1000	2000	HCC-1966	HVD-30-1000	DDS0-103	HVB30DI	2HV-110	30GA-DI	
C57	390		HCC-1968	SI 390	DD-391	L10T39	UC-5339	5GA-T39	
C58	1000		HCC-1969	SI 1000	DD-102	LT6DI	UC-521	5HK-DI	
C59	1000		HCC-1969	SI 1000	DD-102	LT6DI	UC-521	5HK-DI	
C60	10000		HCC-1970	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C61	.01	1000	HCT-1004	P1088N-01	DD-103	CUB10SI	GEM-1011	10TM-S1	
C62	470 0		HCC-1952-1	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C63	.047	400	HCT-1048	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C64	4700		HCM-1648	1464-0047		1R5D47		MS-247	5%
C65	330		HCM-1652	1469-00033		5R5T33		MS-333	5%

CAPACITORS (cont)

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ANDREA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C66	10		HCC-1965	NPO-SI 10	TCZ-10	CTA6Q1C	ZT-541	5TCC-Q1S 10% *	NPO 10%
C67	.1	400	HCT-1045	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C68	560		HCM-1651	1469-00056		1R5T56		MS-356	5%
C69	10000		HCM-1970	BPD-01	DD-103	BYA10SI	B-110	5HK-SI	
C70	.1	400	HCT-1045	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C71	.1	600	HCT-1002	P688N-1	DF-104	CUB4P1	GEM-601	6TM-P1	
C72	.05	600	HCT-1012	P688N-05	DF-503	CUB6S5	GEM-615	6TM-S5	
C73	.03	600	HCT-1060	P688N-03	DF-303	CUB6S3	GEM-613	6TM-S3	
C74	300	2000	HCC-1984		DD30-301	HVB20T3		20GA-T3	
C75	300	2000	HCC-1984		DD30-301	HVB20T3		20GA-T3	
C76	75	2000	HCC-1985		DD30-750	HVB20Q75		20GA-Q75	
C77	500	20000	HCH-2705-1	UV-502	TV-207	MMU200T5	HV20035U	20DK-T5	

* Not normally in distributors stock. Available thru distributor on order to manufacturer.
① Some versions may use 38mm² in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ANDREA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	750Ω	½	GRV-857	F3-2		† QJ-944	†† UE3757-8	Contrast
B	500K	½		R2-41				Volume
C	Switch			KB-2 or KR-2*				Switch
R2A	1meg	½	GRV-859	B-68	A47-1meg-S	QJ-137		Tone
B	Shaft			Not Req.	K88-3	U52		
R3A	50K	½	GRV-847	B-31	A47-50K-S	QJ-123	U35	Horiz. Hold
B	Shaft			Not Req.	K88-3	Not Req.	Not Req.	
R4A	250K	½	GRV-862	B-50	A47-250K-S	QJ-130	U46	Brightness
B	Shaft			Not Req.	K88-3	Not Req.	Not Req.	
R5A	1.5meg	½	GRV-861	B-742	B47-1.5meg-S	BJ1-138	TM55L	Vert. Hold
B	Shaft			Not Req.	Not Req.	TM-2	Not Req.	
R6A	1.5meg	½	GRV-861	B-742	B47-1.5meg-S	BJ1-138	TA55L	Vert. Lin.
B	Shaft			Not Req.	Not Req.	TM-2	Not Req.	
R7A	1meg	½	GRV-866		B47-1meg-S	BJ1-137	TA6L	Height
B	Shaft				Not Req.	TM-2	Not Req.	
R8	50K	½	GRV-867	B-31	B47-50K-S	QJ-123	TA54L	Horiz. Drive
R9A	100K	½	GRV-858	AB-40	A47-100K-S	BJ1-128	PTA15L	AGC
B	Shaft			AK-1	FK3-1/4	TM-3	Not Req.	

* Use KB with CRL "blue label" controls and KR with "red label" controls.
† "Concentrikit" Equivalent: K-2 Kit Base Elements & Shafts: B17-105, P1-114 (Panel) B13-133, R1-200 (Rear) 76-2 Switch
†† "STA-LOC" Equivalent: FC751R, OF1427, RU55A, IS2000

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ANDREA PART No.	NOTES
	OHMS	WATT		
R10	560K		GRC-305	
R11	8.2meg		GRC-353	
R12	180K		GRC-336	
R13	47K		GRC-207	
R14	100K		GRC-258	
R15	1000Ω	1	GRC-231	
R16	12K 5%		GRC-360	
R17	100K		GRC-258	
R18	1000Ω		GRC-210	
R19	47Ω		GRC-211	
R20	1000Ω		GRC-210	
R21	1000Ω		GRC-210	
R22	47Ω		GRC-211	
R23	6800Ω 5%		GRC-354	
R24	1000Ω		GRC-210	
R25	1000Ω		GRC-210	
[redacted]			GRC-214	
R27	150Ω		GRC-202	
R28	4700Ω 5%		GRC-273	
R29	3900Ω 5%		GRC-303	
[redacted]	2700Ω 5%	2	GRC-362	
R31	2200Ω 5%	2	GRC-361	
[redacted]	2200Ω 5%	2	GRC-361	
R33	18K	2	GRC-357	
R34	330K		GRC-301	
R35	22K		GRC-201	
R36	100K		GRC-258	
R37	39K		GRC-247	
R38	39K		GRC-247	
R39	150K		GRC-243	
R40	27K		GRC-324	
R41	68K		GRC-204	
R42	1000Ω		GRC-210	
R43	100Ω		GRC-216	
R44	100K		GRC-258	
R45	1000Ω		GRC-210	
R46	100K		GRC-258	
R47	100Ω		GRC-216	
R48	47K		GRC-207	
R49	33Ω		GRC-289	
R50	18K		GRC-330	
R51	4.7meg		GRC-343	
R52	330K		GRC-301	
R53	100K		GRC-258	
R54	470K		GRC-228	
R55	2.2meg		GRC-317	
[redacted]	560Ω	2	GRC-363	
R57	330Ω	1	GRC-345	
R58	10K		GRC-304	
R59	39K		GRC-247	
[redacted]	15K	1	GRC-327	
R61	68Ω		GRC-214	
R62	470K		GRC-228	
R63	1.8meg		GRC-321	
R64	10K		GRC-304	

ITEM No.	RATING		ANDREA PART No.	NOTES
	OHMS	WATT		
R65	47K		GRC-207	
R66	560Ω		GRC-250	
R67	1meg		GRC-274	
R68	10K	1	GRC-232	
R69	1800Ω		GRC-346	
R70	470K		GRC-228	
R71	470Ω		GRC-213	
R72	47K		GRC-207	
R73	10K		GRC-304	
R74	22K		GRC-201	
R75	3.3meg		GRC-339	
R76	1.2meg		GRC-359	
R77	1.2meg		GRC-359	
R78	18K		GRC-330	
R79	10K		GRC-304	
R80	18K		GRC-330	
R81	18K		GRC-330	
R82	10K		GRC-304	
R83	470K		GRC-228	
R84	470K		GRC-228	
R85	470K		GRC-228	
R86	470K		GRC-228	
R87	22K		GRC-201	
R88	330Ω	2	GRC-333	
R89	180Ω		GRC-325	
R90	220Ω		GRC-218	
R91	3.5Ω Cold			Note 1
R92	220Ω		GRC-218	
R93	100K		GRC-258	
R94	820Ω 5%		GRC-375	
R95	750Ω 5%		GRC-376	
R96	27K		GRC-324	
R97	6800Ω	2	GRC-257	
R98	6800Ω	2	GRC-257	
R99	100K 5%		GRC-358	
R100	100K 5%		GRC-358	
R101	2.2meg		GRC-317	
R102	470K		GRC-228	
R103	8200Ω	2	GRC-374	
R104	1200Ω 5%		GRC-373	
R105	100K		GRC-258	
R106	100K		GRC-258	
R107	68K		GRC-204	
R108	4700Ω 5%		GRC-373	
R109	100Ω		GRC-216	
R110	470K		GRC-228	
R111	15K	2	GRC-237	
R112	15K	2	GRC-237	
R113	4700Ω		GRC-205	
R114	330K		GRC-301	
R115	680K		GRC-302	
R116	1.2Ω		GRW-564	
R117	3900Ω	1	GRC-351	
R118	2000Ω	15	GRW-556	
R119	330K		GRC-301	

Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		ANDREA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	47.25MC Trap	SA-381	20-1049				
L2A	1st Video IF	SA-377B					
B	41.25MC Trap						
L3	2nd Video IF	SA-378-1	17-4522	TV-130	6219	VF-3	
L4	3rd Video IF	SA-379	17-4522	TV-130	6219	VF-3	
L5	4th Video IF	SA-390	17-5004	TV-126	6234		
L6	Resonant Choke	SA-349					
L7	4.5MC Trap	SA-397	20-1054	TV-151	1469	SF-3	
L8	Shunt Peaking Coil	SA-398	19-3180	TV-184	6180	VP-5	180 Microhenries
L9A	Series Peaking Coil	SA-391	19-3300				310 Microhenries
B	Series Peaking Coil		19-3250				237 Microhenries
L10A	Series Peaking Coil	SA-392	19-4400				408 Microhenries
B	Series Peaking Coil		19-4400				408 Microhenries
L11	1st Sound IF	SA-396					
L12	2nd Sound IF	SA-399	17-3495	TV-113	6203	SF-2	
L13	Ratio Detector	SA-400	17-3497	TV-115	6205	SD-4	
L14	RF Choke	SA-401	19-1004		4609		5.8 Microhenries ①
L15	RF Choke	SA-401	19-1004		4609		5.8 Microhenries ①

① IRC Part #CL-1.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ANDREA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L16	50Ω		SA-395	19-1576	TV-165 *	6210	H-102	H8-5	Horiz. Freq. * Disregard tap.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA							
	CURRENT (Measured)	DC RES.	INDUCTANCE (@ CURRENT 1000 ℃)	ANDREA PART No	Halldorson PART No.	Merit PART No.	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
L17	.360A	41Ω	1.8 Hy.	ST-3099	C5041					

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA								
		ANDREA PART No.	Halldorson PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L18	Width Coil	SA-418		MWC-6	6322	201R12 ①	QRC108	WC-8A	WC-22 ①	WLC-5

① Enlarge mounting hole.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	ANDREA PART No	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 2.4A	540VCT @ .360A	5V @ 6A	ST-3098 ①						
	SEC. 3	SEC. 4	SEC. 5							
	12.6VCT @ 6A									

① Part #ST-3100 used in 50~ models.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA								
		ANDREA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	Vert. Output	ST-3097-1			V319					A-113X ①
T3	Yoke-Horiz. (19MH) (110Ω)-Vert. (13.5MH)	ST-3096 SA-144A ②			Y-110 ③④		DY-27A ③④	Y-48 ②④		Y-60 ① ⑤ YC-10
	Rear Cover & Centering Device	ST-3094								
T4	Horiz. Output	ST-3095-1	FB491 *	HVO-81 *			HO-289 *	FLY-150 *		

① Connect as autoformer. ② Complete assembly. ③ Use original yoke damping network, if necessary. Connect same as original. ④ Use original rear cover and centering device.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	8	5	9			5	5	
	6	4	7			4	4	
	5	3	5			3	3	
	4	2	3			2	2	
	3	2	3			2	2	
	2	1	1			1	1	
Connect Width Coil Across →	3 & 2	2 & 1	3 & 1			2 & 1	2 & 1	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ANDREA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T5	4700Ω	3-4Ω	ST-3070	Z1109	A-2935	AU-609	A-3870	22S88	S-5X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ANDREA PART No.	QUAM PART No.	
SP1	10"	PM	3-4Ω	SL-4024 ①	10A31	① Used in Models C-VQ21-110, LB-VQ21-110, MLB-VQ21-110
SP2	4"	PM	3-4Ω	SL-4022 ②	4A07	② Used in all models
	8"	PM	3-4Ω	SL-4020 ③	8A31	③ Used in Model MC-VQ21-110
	12"	PM		SL-4036 ④		④ Used in Model 2LB-VQ21-110

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ANDREA PART No.	REPLACEMENT DATA	
K1	Vert. Integrator	5000mmf, 5000mmf, 2000mmf, 8200Ω, 8200Ω, 22K	FM-5289	Aerovox Centralab Cornell-Dubilier Sprague	PA-110 PC-100 115TM1 V-1/V-3

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ANDREA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	MDV	1/4A 250V S/B	FM-5535		315.250 (MDV-1/4A-125V-S/B)		MDV 1/4	
M2	MDL	2½A-125V S/B	FM-5501	FM-5193	31302.5 (MDL-2½A-125V-S/B)	342001	MDL 2½	HKP

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ANDREA PART No.	CBS PART No.	SYLVANIA PART No.	
M3	1N60	FM-5144-1	1N60	1N295	Video Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	ANDREA PART No.	NOTES
M4	Lamp		#47
M5	Tuner	FM-5466-A	VHF
M6	Switch	FM-5471	Picture Fidelity, 2 Position (Rotary, Wafer Type)

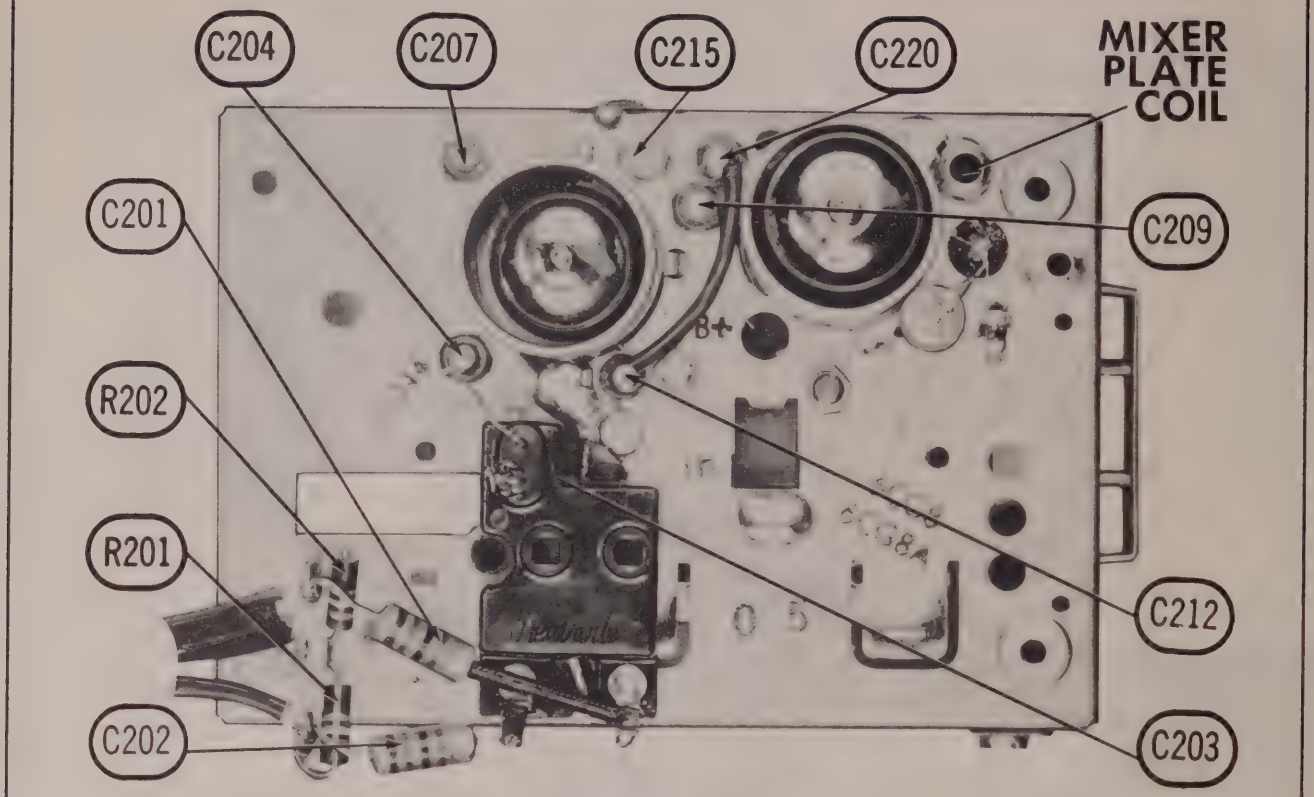
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

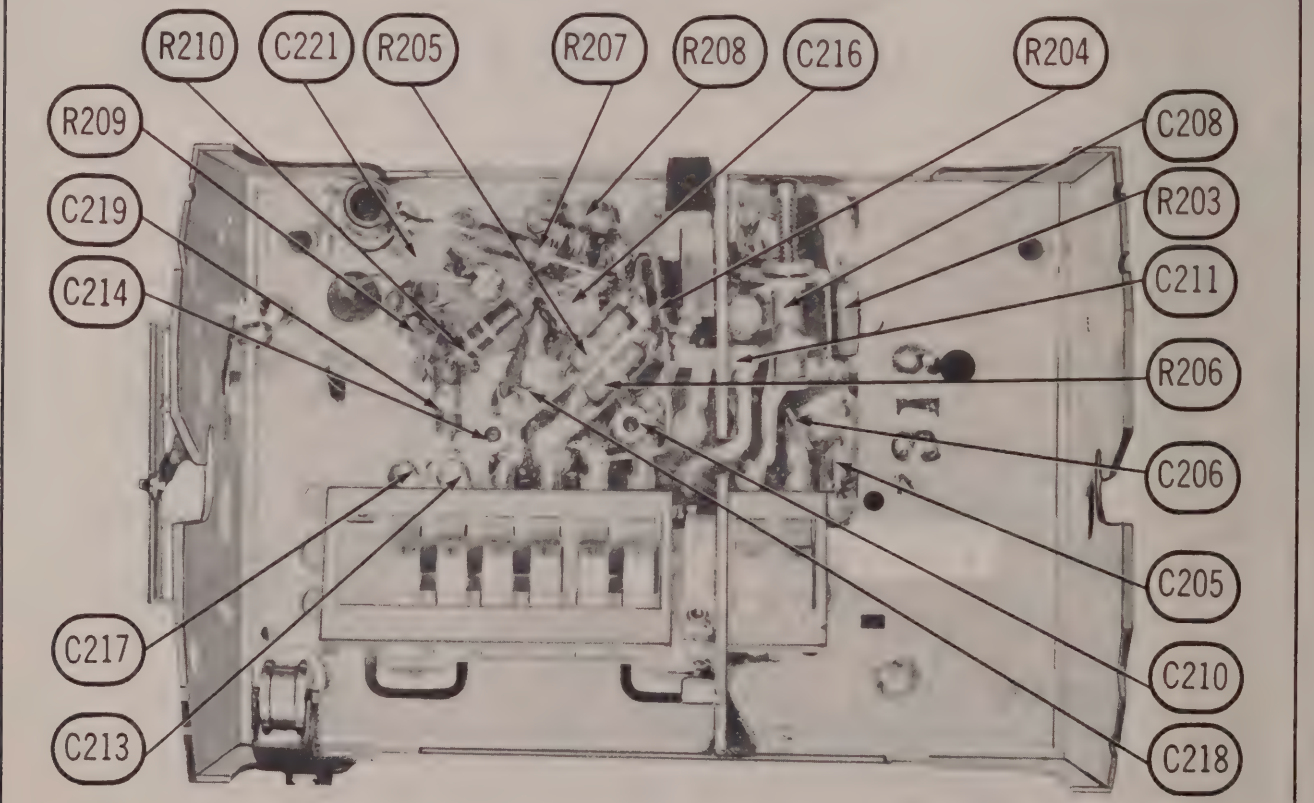
NAME	PART NO.	DESCRIPTION
Safety Glass	FM-5450	
Mask	EP-931	
Knob	FM-5474	Channel Selector
Knob	FM-5476	Fine Tuning
Knob	FM-5475	Volume-On-Off
Knob	FM-5478	Brightness, Horiz. Hold, Tone
Knob	FM-5477	Contrast
Knob	FM-5479	Picture Fidelity

WIRING DATA

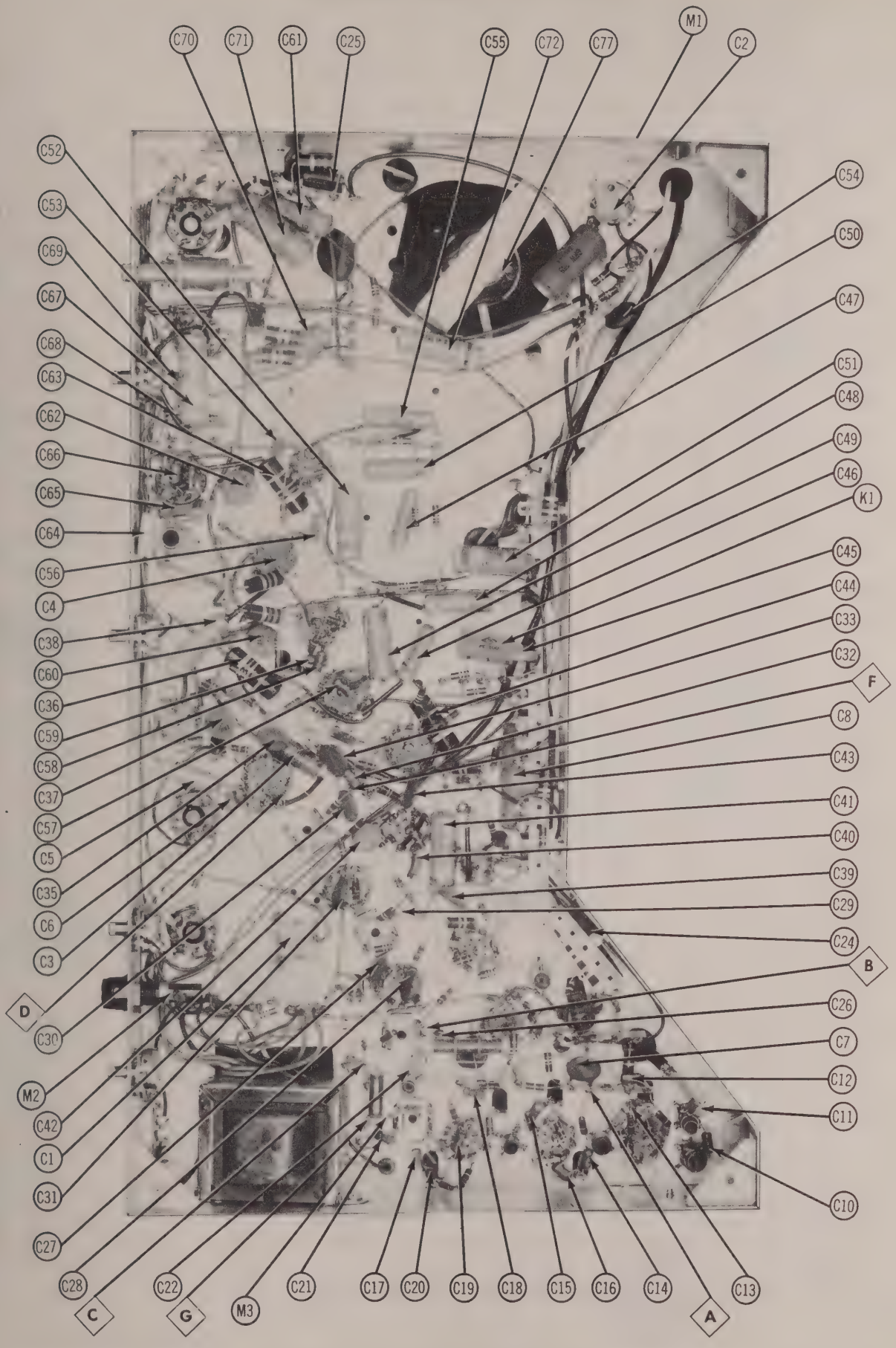
High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



TUNER FM-5466-A - TOP VIEW



TUNER FM-5466-A - BOTTOM VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

RESISTANCE MEASUREMENTS

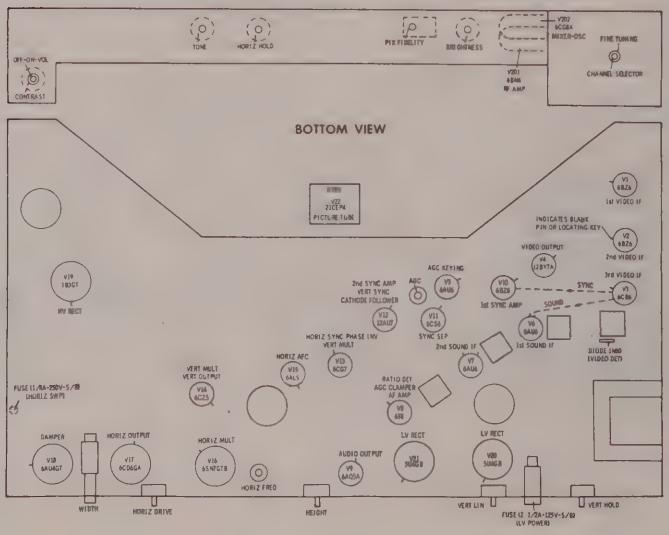
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	160K	47Ω	.1Ω	0Ω	†3000Ω	†3000Ω	0Ω		
V2	6BZ6	150K	47Ω	.1Ω	0Ω	†3000Ω	†3000Ω	0Ω		
V3	6CB6	.1Ω	218Ω	.1Ω	0Ω	†4000Ω	†4000Ω	0Ω		
V4	12BY7A	• 80Ω	4700Ω	0Ω	.1Ω	.1Ω	0Ω	†7100Ω	†18K	0Ω
V5	6AU6	†35K	†2000Ω	0Ω	.1Ω	250K	†0Ω	†2000Ω		
V6	6AU6	4.2Ω	0Ω	.1Ω	0Ω	†3000Ω	†3000Ω	100Ω		
V7	6AU6	100K	0Ω	.1Ω	0Ω	†3000Ω	†100K	100Ω		
V8	6T8	520K	47K	520K	0Ω	.1Ω	330K	0Ω	4.7meg	†430K
V9	6AQ5A	470K	330Ω	.1Ω	0Ω	†910Ω	†560Ω	470K		
V10	6BZ6	12K	68Ω	0Ω	.1Ω	†17K	†2000Ω	0Ω		
V11	6CS6	1.8meg	560Ω	.1Ω	0Ω	†12K	†49K	560Ω		
V12	12AU7	†14K	1meg	1800Ω	.1Ω	.1Ω	†2000Ω	520K	22K	0Ω
V13	6CG7	•†700K	•1.9meg	0Ω	.1Ω	0Ω	†4700Ω	100K	750Ω	NC
V14	6CZ5	†510Ω	TP	• 1.4meg	0Ω	.1Ω	•1.4meg	0Ω	NC	†800Ω
V15	6AL5	27K	27K	.1Ω	0Ω	2.3meg	0Ω	2.3meg		
V16	6SN7GTB	2.7meg	†8200Ω	1200Ω	•140K	• †80K	1200Ω	.1Ω	0Ω	
V17	6CD6GA	NC	.1Ω	0Ω	TP	470K	NC	0Ω	†7500Ω	TOP CAP †15.3Ω
V18	6AU4GT	NC	NC	¶750K	NC	†3.3Ω	NC	.1Ω	0Ω	
V19	1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP †345Ω
V20	5U4GB	NC	¶	NC	22Ω	NC	21Ω	NC	¶	
V21	5U4GB	NC	¶	NC	22Ω	TP	21Ω	NC	¶	
V22	21CEP4	0Ω	22K	†300K	†0Ω	NC	NC	• 360K	.1Ω	
V201	6BN4	0Ω	900K	0Ω	.1Ω	†4000Ω	0Ω	900K		
V202	6CG8A	3900Ω	†6900Ω	0Ω	0Ω	.1Ω	†4000Ω	†13K	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

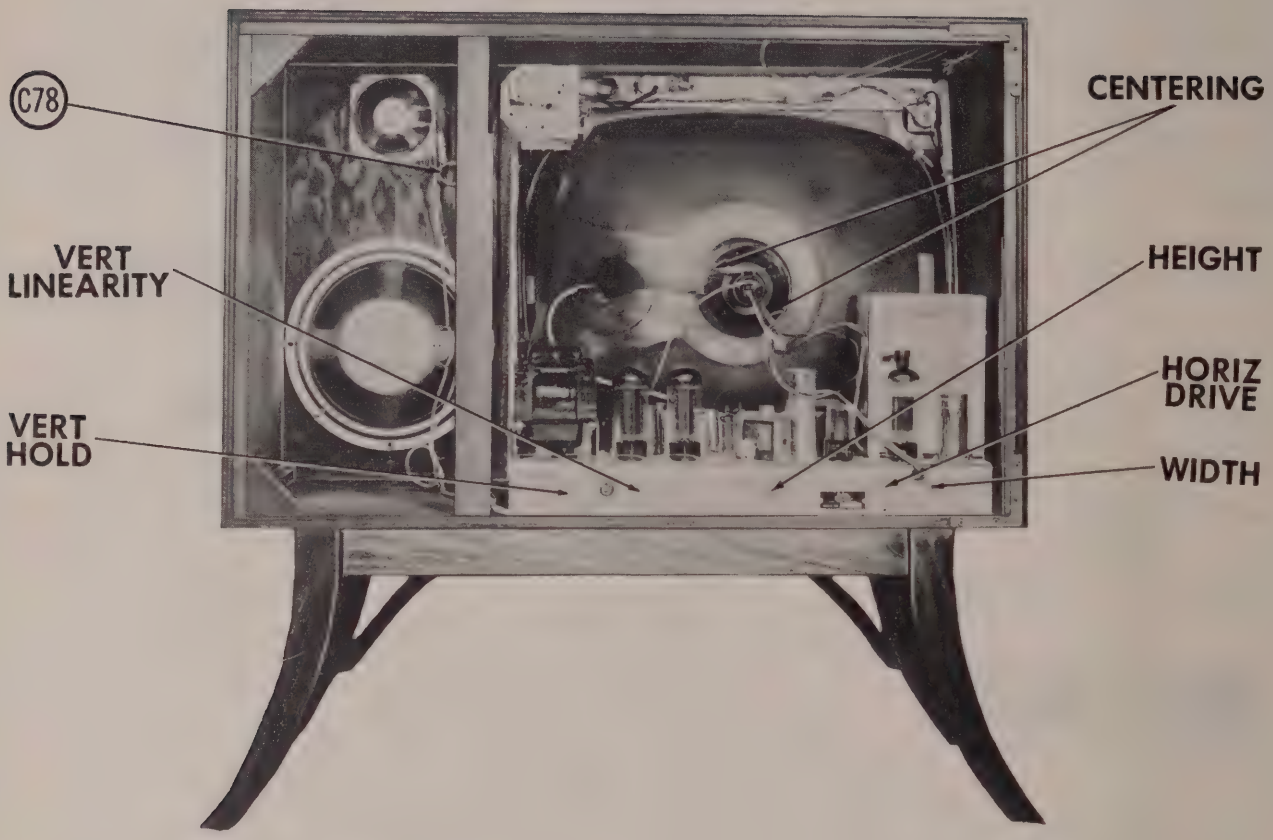
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

† MEASURED FROM 255V SOURCE. NC NO CONNECTION.

‡ MEASURED FROM PIN 3 OF V18. TP TIE POINT.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Reduce the Contrast to a weak picture.

Set the Horizontal Hold fully counterclockwise.

Turn the Horizontal Drive clockwise until drive line appears.

Turn the Horizontal Drive counterclockwise until the drive line just disappears.

Adjust the Width slug (B2) for a picture SLIGHTLY wider than necessary to fill the picture mask horizontally.

Adjust the Horizontal Frequency slug (B1) so picture just goes out of sync.

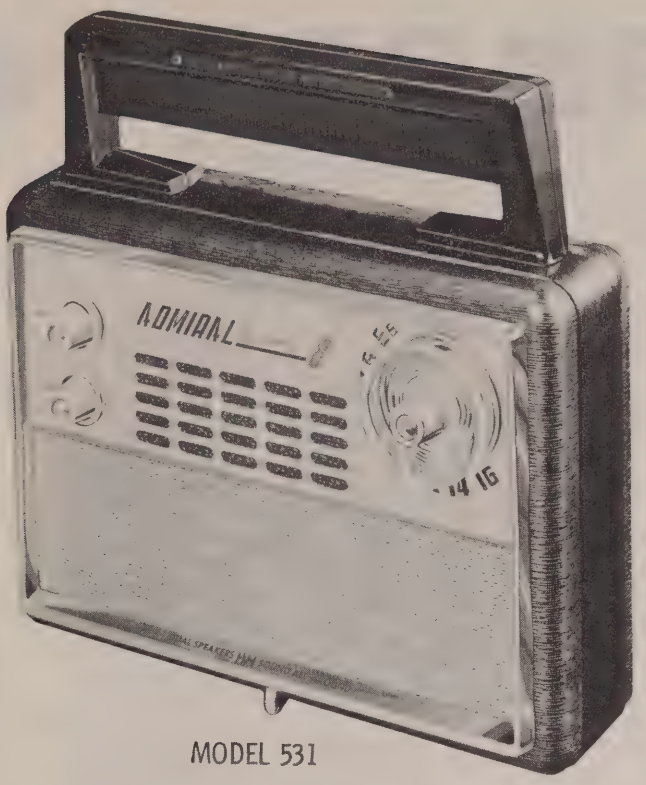
Turn the Horizontal Frequency slug (B1) back to bring picture into sync.

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

ADMIRAL MODELS 231, 237, 531, 537 (Ch. 8L1, 8K1)

ADMIRAL MODELS 231, 237, 531, 537 (Ch. 8L1, 8K1)



MODEL 531

TRADE NAME	Admiral Models 231, 237, (CH. 8K1) 531, 537 (CH. 8L1)
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois
TYPE SET	Battery Operated Portable Transistorized AM Receiver
POWER SUPPLY	12 Volts DC
TUNING RANGE—BROADCAST	535-1620KC
RATING	9MA@12 Volts DC(No Signal, Min. Vol.) 11MA@12 Volts DC(Signal, Normal Vol.)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:

A1, A2, A3, A4..... General Cement #8987, 8988, 8728, 8728-A, 8195
Walsco #2515

A5, A6..... General Cement #8729, 9291, 9294, 5004, 8728, 8728-A, 8195
Walsco #2532, 2537, 2522, 2525, 2531, 2520

A7..... General Cement #8606, 8606-L
Walsco #2543, 2544

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001mfd to reduce hum modulation.
2.		"	1620KC	"	"	A5	"
3.		"	1400KC	Tune for 1400KC signal	"	A6	"
4.		"	600KC	Tune for 600KC signal	"	A7	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001mfd to reduce hum modulation. Repeat Steps 2, 3, & 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H811

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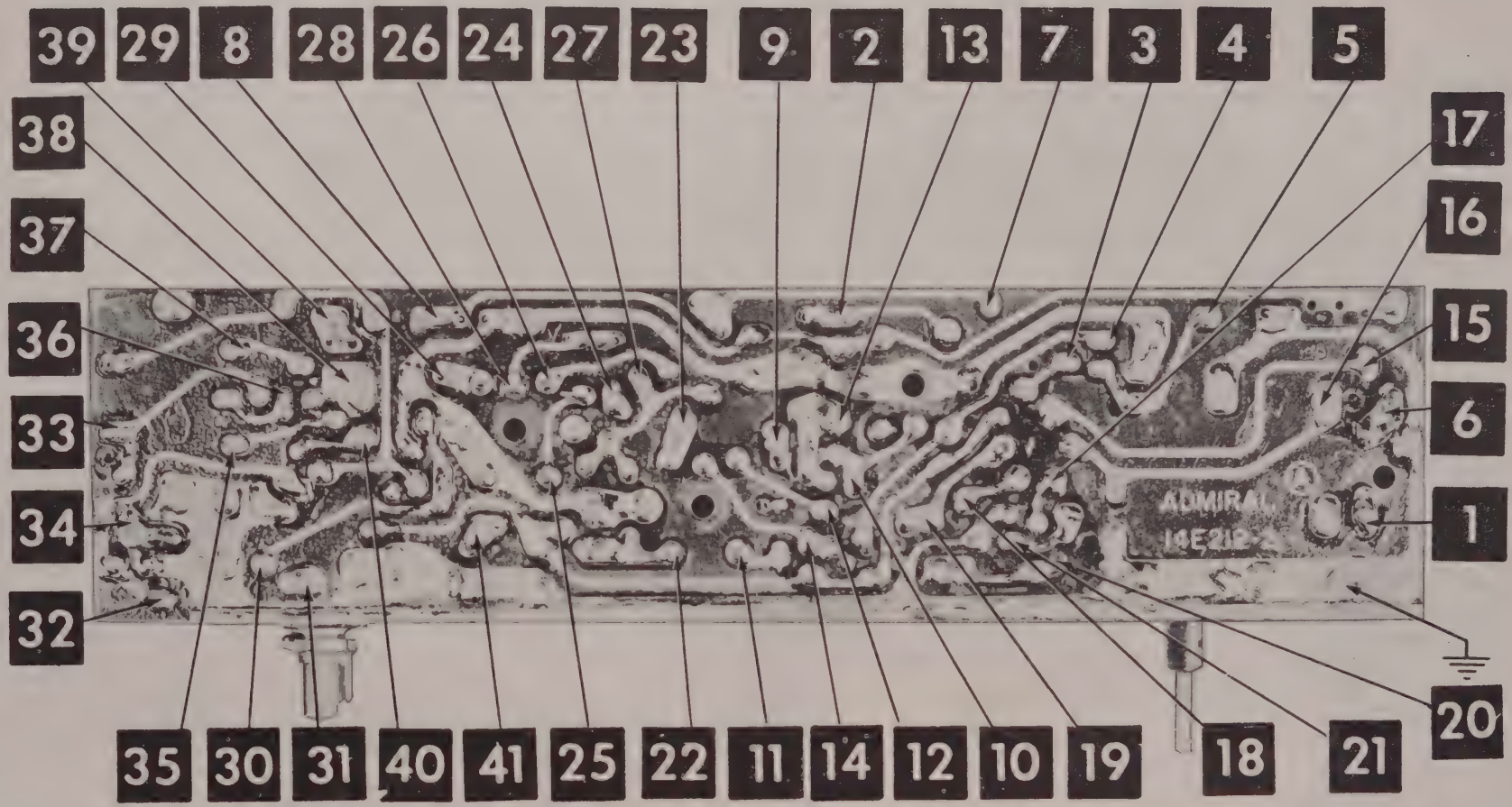

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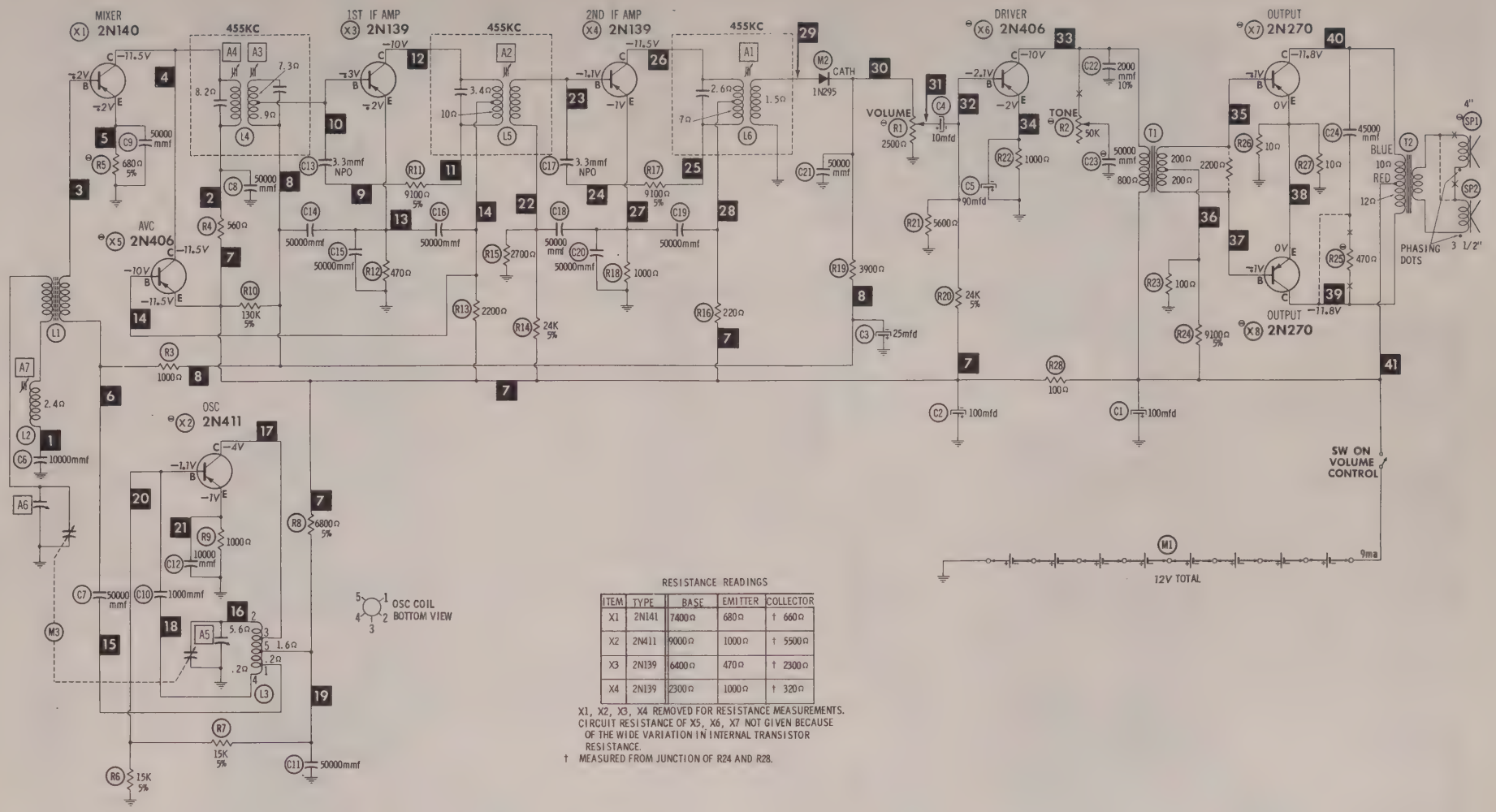

RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N141	7400Ω	680Ω	† 660Ω
X2	2N411	9000Ω	1000Ω	† 5500Ω
X3	2N139	6400Ω	470Ω	† 2300Ω
X4	2N139	2300Ω	1000Ω	† 320Ω

X1, X2, X3, X4 REMOVED FOR RESISTANCE MEASUREMENTS.
CIRCUIT RESISTANCE OF X5, X6, X7 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
† MEASURED FROM JUNCTION OF R24 AND R28.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum. no signal apllied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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ADMIRAL MODELS 231, 237, 531, 537 (Ch. 8L1, 8K1)

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		ADMIRAL PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loopstick	69B225-2					
L2	Ant Coil	69B224-1					
L3	Osc. Coil	69B222-1					
L4	1st IF Trans.	72C189-1					
L5	2nd IF Trans.	72C190-1					
L6	3rd IF Trans.	72C190-2					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.2	: 1	79B76-1						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	500Ω CT	6-8Ω	Part of SP1							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ADMIRAL PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	78C145-1	4A1Z4.9	① Alternate part number includes T2 ② Not used in chassis 8K1.
	4"	PM	3-4Ω	78B133-2 ①	4A07	
SP2	3 1/2"	PM	3-4Ω	78B144-1 ②	3A07	

BATTERIES

ITEM No.	VOLTAGE	ADMIRAL PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	12V			1 ①		935 ①		M-14 ①	① 8 used

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ADMIRAL PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N295	1N295	1N60	1N295	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M3	Tuning Cap. Printed Board	68B66-4 14E212-2	2 Gang (Ant. 273mmf max., Osc. 102mmf max.)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	33C279-4	Tuning, Models 531, 537
Knob	33C232-2	Tuning, Model 231
Knob	33C232-5	Tuning, Model 237
Knob	33B278-2	Off-On-Volume, Tone, Models 531, 537
Knob	33C232-1	Off-On-Volume, Model 231
Knob	33C232-4	Off-On-Volume, Model 237
Knob	33C232-7	Pointer, Models 231, 237
Handle Half	33D234-2	Tongue, Models 231, 531
Handle Half	33D234-1	Tongue, Model 537
Handle Half	33D234-4	Groove, Models 231, 531
Handle Half	33D234-3	Groove, Models 237, 537
Case	A5834-2	Antenna, Includes Eyelet, Models 231, 531
Case	A5834-1	Antenna, Includes Eyelet, Models 237, 537
Cover	33D234-6	Antenna, Models 231, 531
Cover	33D234-5	Antenna, Models 237, 537
Cabinet	34E133-3	Less Handle, Escutcheon, And Grille, Model 531
Cabinet	34E133-4	Less Handle, Escutcheon, And Grille, Model 537
Cabinet	34E124-1	Less Handle, Escutcheon, And Grille, Model 231
Cabinet	34E124-2	Less Handle, Escutcheon, And Grille, Model 237

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N140	Mixer		2N140	2N486	2N140	PNP
X2	2N411	Oscillator		2N411	2N485	2N411	PNP Note 1
X3	2N139	1st IF Amplifier		2N139	2N483	2N139	PNP
X4	2N139	2nd IF Amplifier		2N139	2N483	2N139	PNP
X5	2N406	AVC		2N406	2N363	2N406	PNP Note 2
X6	2N406	Driver		2N406	2N363	2N406	PNP Note 3
X7	2N270	Output		2N270	2N361	2N270	PNP Note 4
X8	2N270	Output		2N270	2N361	2N270	PNP Note 4

Note 1. Some versions may use 2N140 in this application.
Note 2. Some versions may use Part #93A9-3.
Note 3. Chassis 8L1 may use 2N217 in this application. Chassis 8K1 uses 2N209
Note 4. X7 & X8 are a matched pair.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	100	12	67B32-6	SRE12V100	NL100-10	TT15X100	ML100-15		VL-1140
C2	100	12	67B32-6	SRE12V100	NL100-10	TT15X100	ML100-15		VL-1140
C3	25	3	67B32-13	XPP-3025	NL25-3	TT3X25	ML25-3		VL-1041
C4	10	3	67B35-6	XPP-3010	NL10-3	TT3X10	ML10-6	MQ-0510	TE-1053
C5	90	3	67B32-10	XPP-3100	NL100-6	TT6X100	ML100-3	MQ-380	VL-1051

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	10000		65D10-41	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C7	50000		65B45-6	BPD-05	DA-503		TA-150	TG-S50	
C8	50000		65B45-6	BPD-05	DA-503		TA-150	TG-S50	
C9	50000		65B45-6	BPD-05	DA-503		TA-150	TG-S50	
C10	1000		65D10-82	BPD-001	DD-102	BYA6D1	B-210	5HK-D1	
C11	50000		65B45-6	BPD-05	DA-503		TA-150	TG-S50	
C12	10000		65D10-41	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C13	3.3		65D6-89	NPO-SI3.3	TCZ-3R3	CTA6V33C	ZT-5533	5TCCB-V33	NPO
C14	50000		65B45-6	BPD-05	DA-503		TA-150	TG-S50	

CAPACITORS (cont)

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C15	50000		65B45-6	BPD-05	DA-503		TA-150	TG-S50	
C16	50000		65B45-6	BPD-05	DA-503		TA-150	TG-S50	
C17	3.3		65D6-89	NPO-SI3.3	TCZ-3R3	CTA6V33C	ZT-5533	5TCCB-V33	NPO
C18	50000		65B45-6	BPD-05	DA-503		TA-150	TG-S50	
C19	50000		65B45-6	BPD-05	DA-503		TA-150	TG-S50	
C20	50000		65B45-6	BPD-05	DA-503		TA-150	TG-S50	
C21	50000		65B45-6	BPD-05	DA-503		TA-150	TG-S50	
C22	2000		65D10-125				JL-220		10%
C23	50000		65B45-6	BPD-05	DA-503		TA-150	TG-S50	①
C24	45000		65B45-11						

① Not used in chassis 8K1.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES	
	RESISTANCE	WATTS	ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.		
R1A	2500Ω	½	75D25-9					Volume	Note 1
B	Switch								
R2A	50K	½	75D1-107	B-32	A47-50K-Z	Q13-123	U33	Tone	Note 2
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.		

Note 1. Part #75C25-9 may be used in this application.
Note 2. Tone control not used in chassis 8K1.

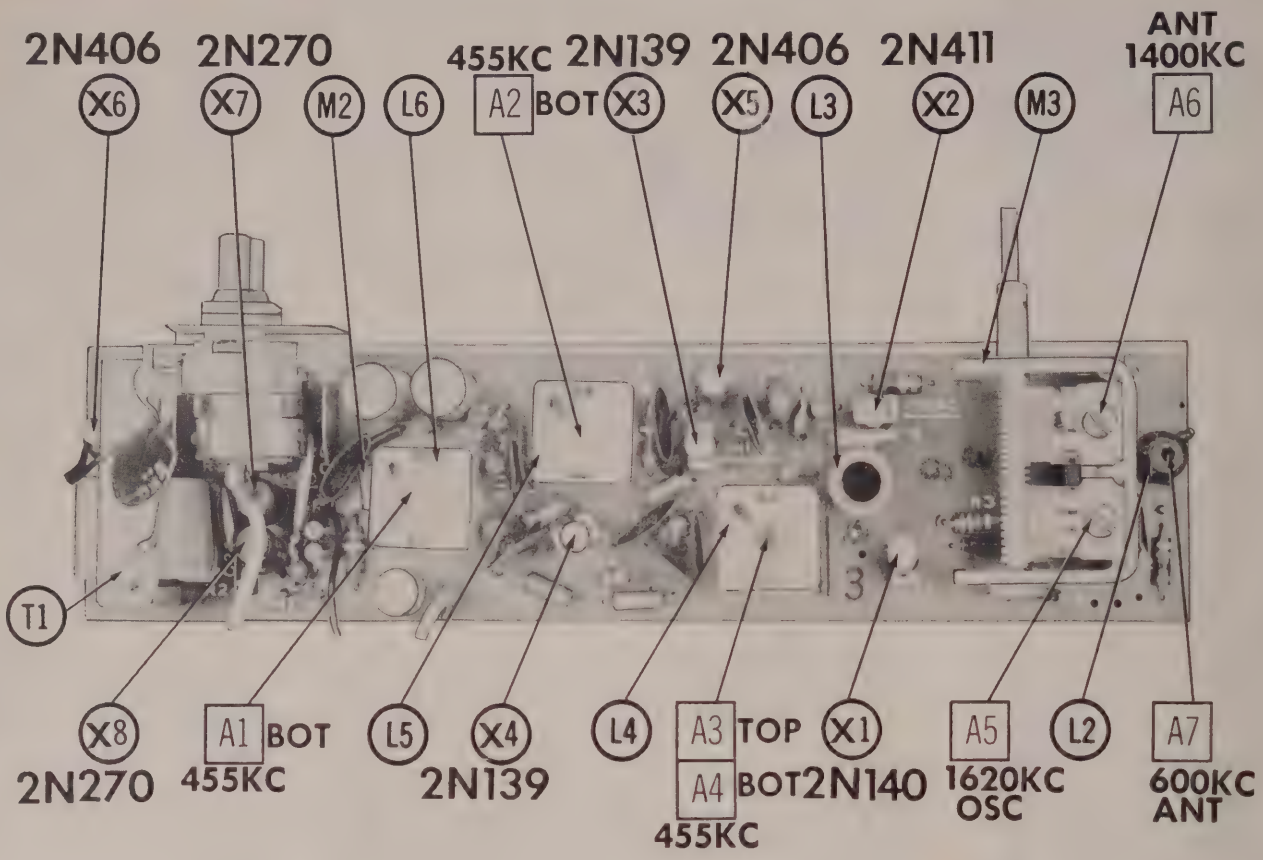
RESISTORS

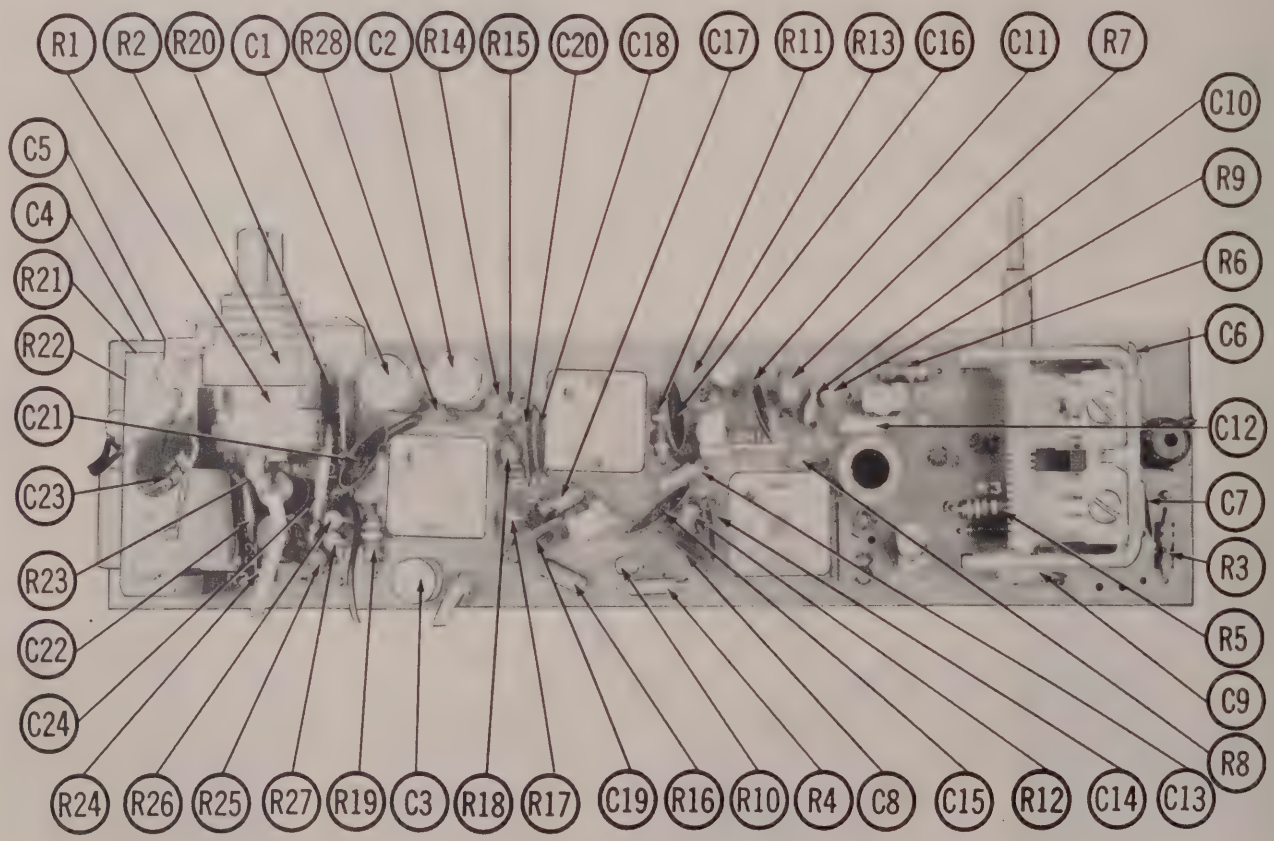
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R3	1000Ω		60B8-102	
R4	560Ω		60B8-561	
R5	680Ω 5%		60B8-681	Note 1
R6	15K 5%		60B7-153	
R7	15K 5%		60B7-153	
R8	6800Ω 5%		60B7-682	
R9	1000Ω		60B8-102	
R10	130K 5%		60B7-134	
R11	9100Ω 5%		60B7-912	
R12	470Ω		60B8-471	
R13	2200Ω		60B8-222	
R14	24K 5%		60B7-243	
R15	2700Ω		60B8-272	

ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R16	220Ω		60B8-221	
R17	9100Ω 5%		60B7-912	
R18	1000Ω		60B8-102	
R19	3900Ω		60B8-392	
R20	24K 5%		60B7-243	
R21	5600Ω		60B8-562	
R22	1000Ω		60B8-102	
R23	100Ω		60B8-101	
R24	9100Ω 5%		60B7-912	
R25	470Ω		60B8-471	Note 2
R26	10Ω		60B8-100	
R27	10Ω		60B8-100	
R28	100Ω		60B8-101	

Note 1. Chassis 8K1 uses 560Ω in this application (Part #60B8-561). Note 2. Not used in chassis 8K1.

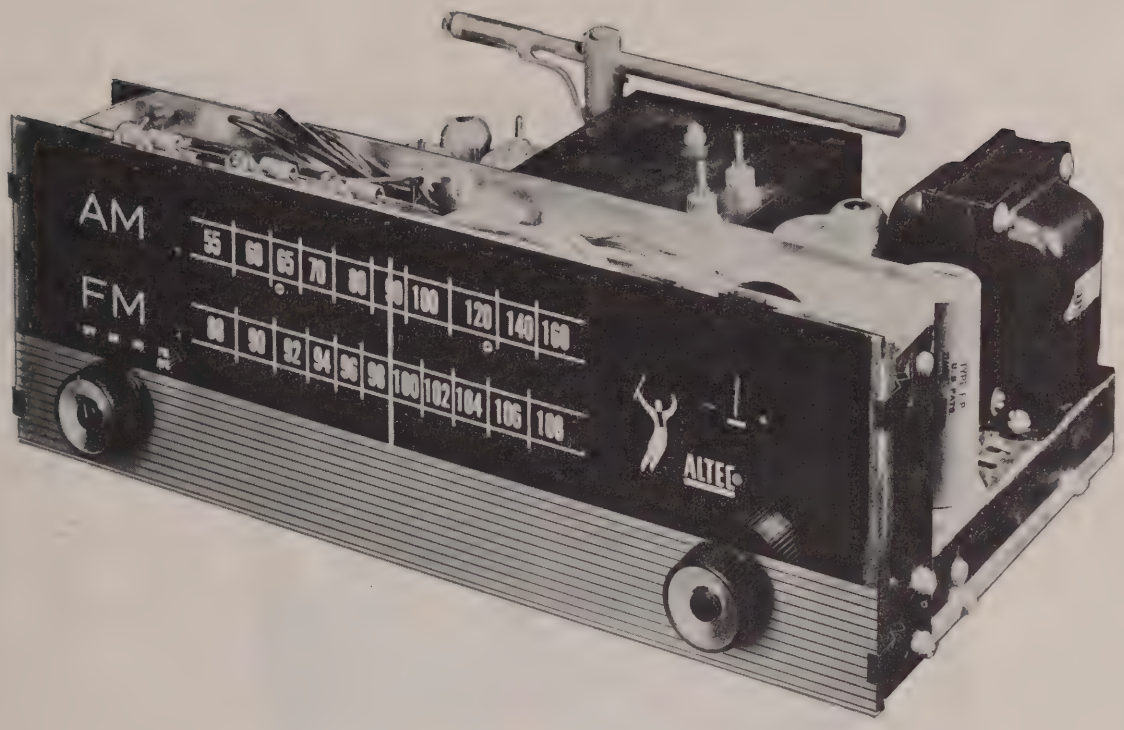




CHASSIS TOP VIEW

PHOTOFACT* Folder

ALTEC LANSING
MODEL 306A



ALTEC LANSING
MODEL 306A

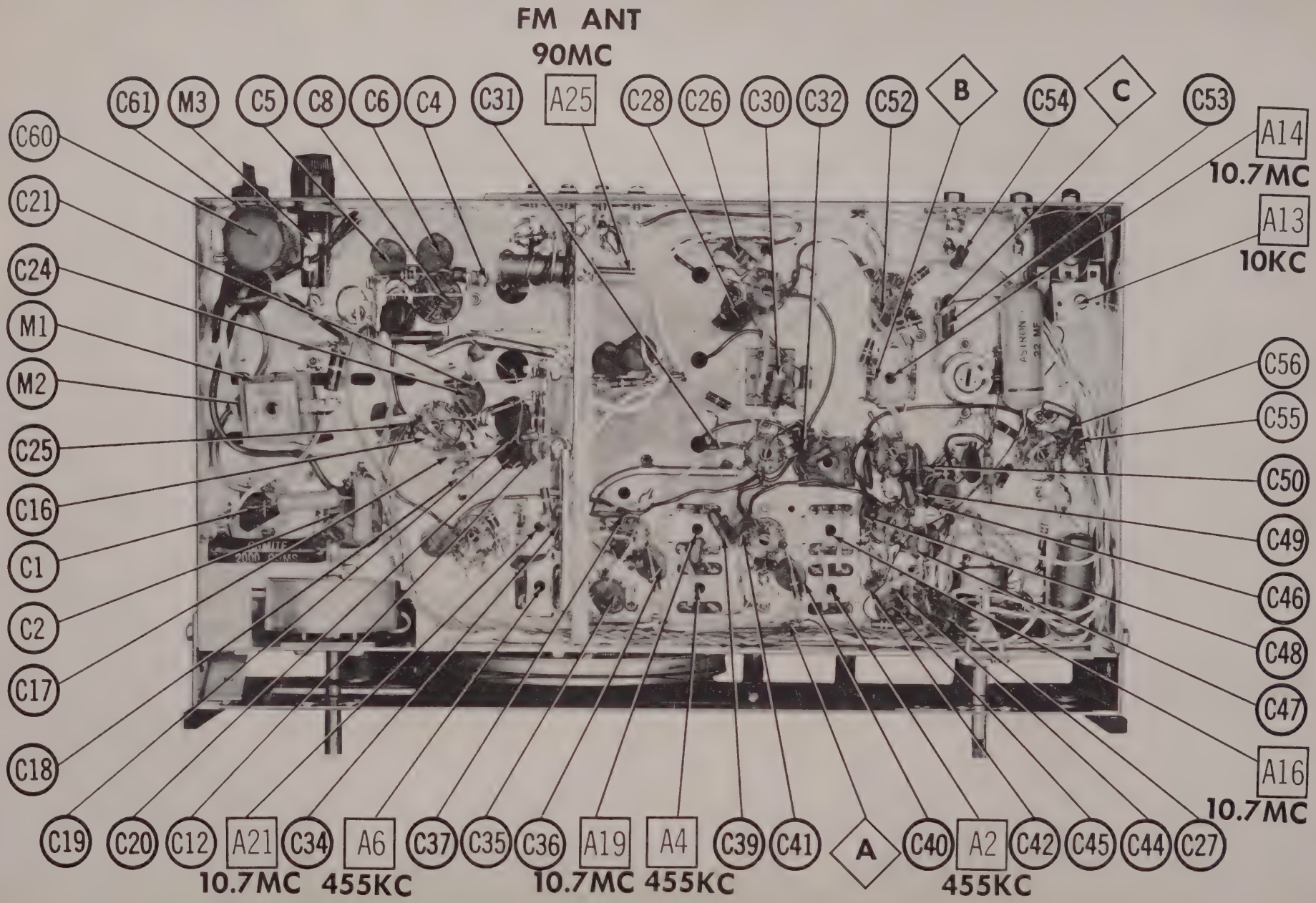
TRADE NAME	Altec Lansing Model 306A		
MANUFACTURER	Altec Lansing Corp., 9356 Santa Monica Blvd., Beverly Hills, California		
TYPE SET	AC Operated FM-AM Tuner		
TUBES	Eleven		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	35 Watts, .36 Amp. @ 117 Volts AC
TUNING RANGE	BROADCAST 534 - 1675KC	FREQ. MOD.	88 - 108MC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

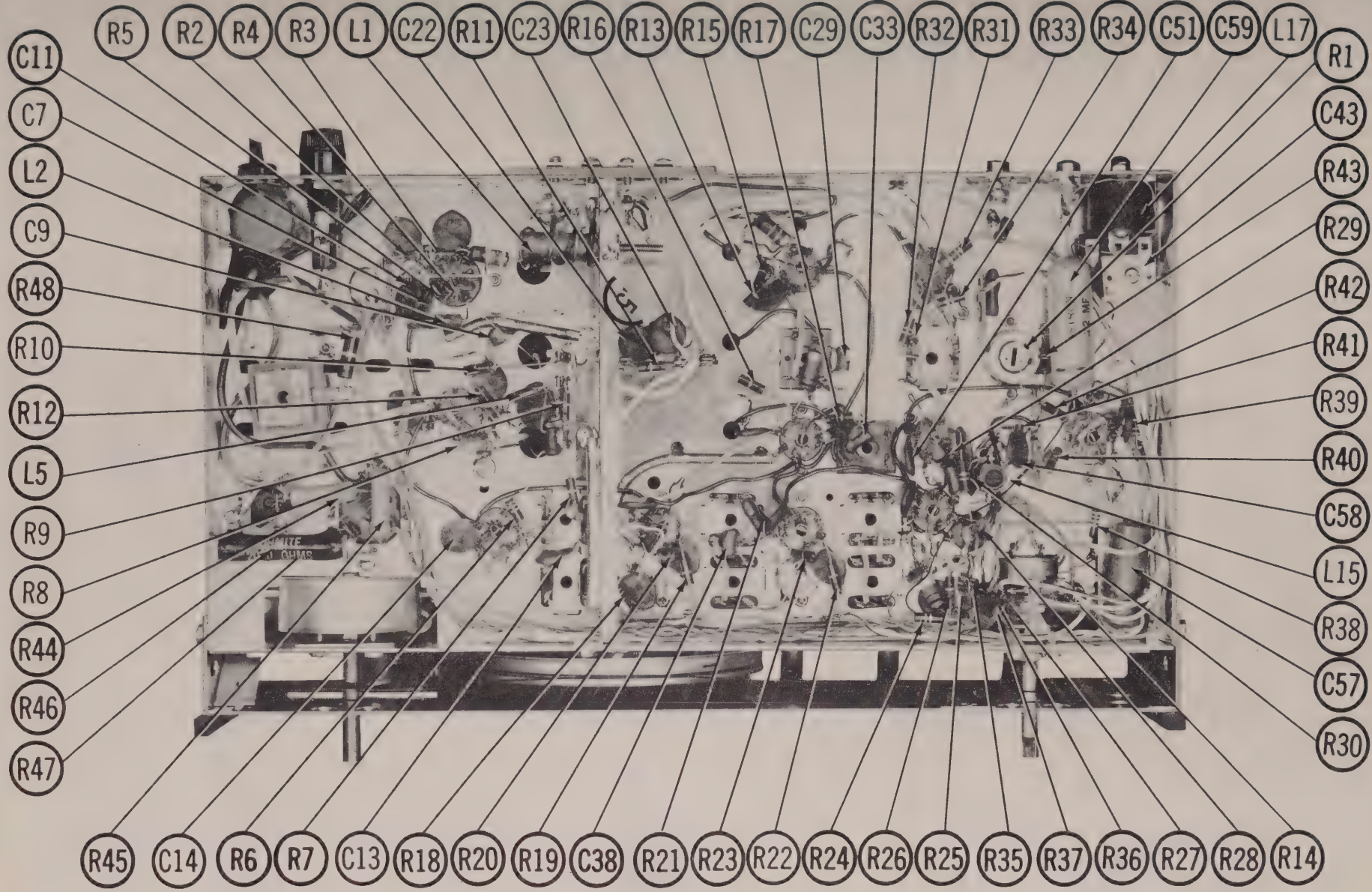
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

H836

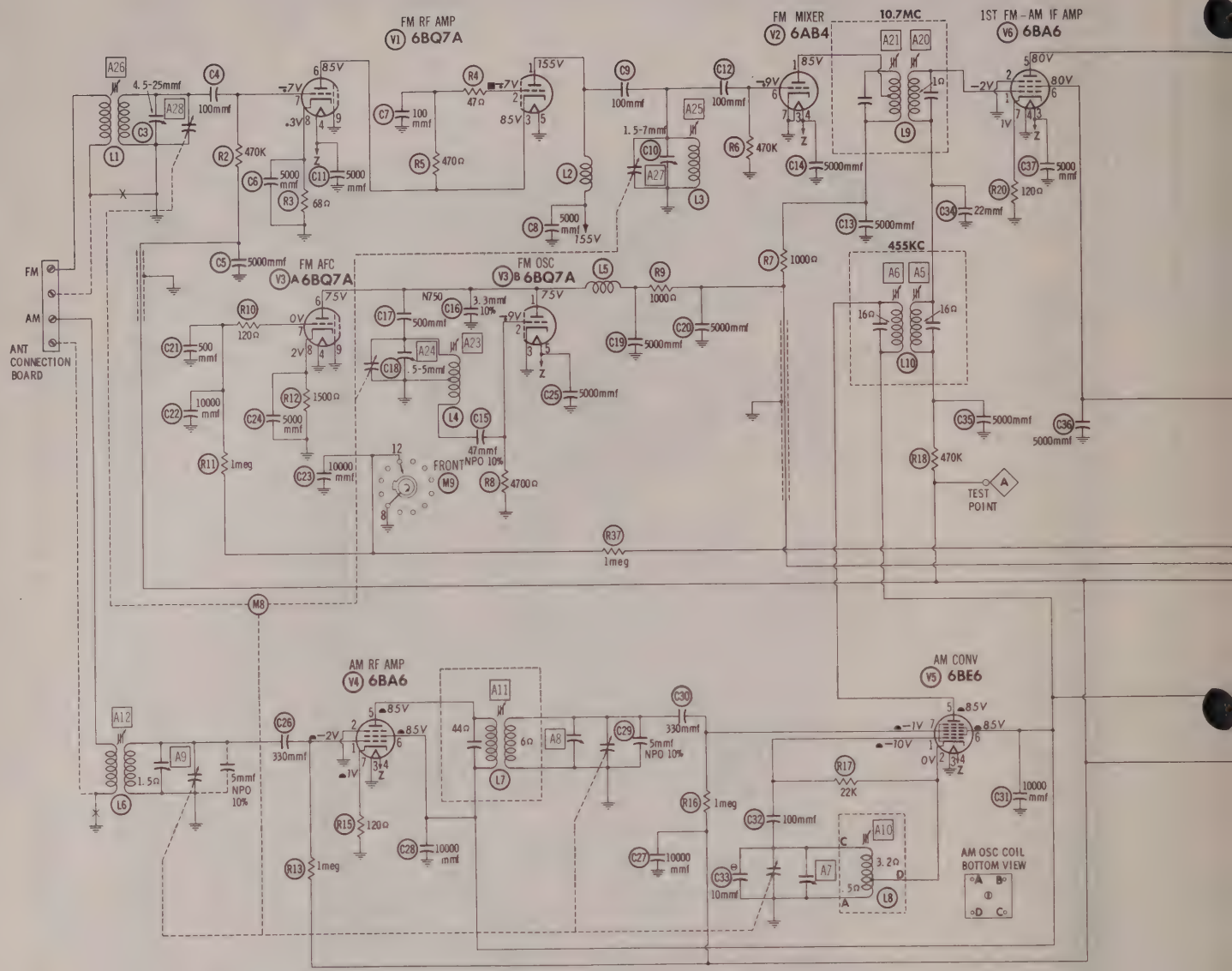
SET 431 FOLDER 4



CHASSIS BOTTOM VIEW - CAPACITOR & ALIGN. IDENT.



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	†2400Ω	INF	INF	.1Ω	0Ω	INF	1.7meg	68Ω	0Ω
V2	6AB4	†4500Ω	NC	0Ω	.1Ω	0Ω	470K	0Ω		
V3	6BQ7A	†4500Ω	4700Ω	0Ω	0Ω	.1Ω	†4500Ω	1meg ▲2meg	1500Ω	0Ω
V4	6BA6	▲2.2meg	0Ω	0Ω	.1Ω	†▲3600Ω	†▲3600Ω	▲120Ω		
V5	6BE6	▲22K	▲.5Ω	0Ω	.1Ω	†▲3600Ω	†▲3600Ω	▲2.2meg		
V6	6BA6	1.6meg	0Ω	.1Ω	0Ω	†4500Ω	†4500Ω	120Ω		
V7	6BA6	1meg	0Ω	.1Ω	0Ω	†4500Ω	†4500Ω	120Ω		
V8	6AU6	240K	0Ω	.1Ω	0Ω	†37K	†37K	0Ω		
V9	6AU6	10K	0Ω	.1Ω	0Ω	†26K	†26K	0Ω		
V10	6AL5	160K	100K	.1Ω	0Ω	0Ω	0Ω	100K		
V11	12AU7A	†2400Ω	1.4meg	480Ω	0Ω	0Ω	†2400Ω	1meg	15K	.1Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM OUTPUT OF M1.
▲ MEASURED IN "AM" POSITION.
■ MEASURED FROM PIN 3 OF V1.
▲ MEASURED FROM PIN 8 OF V11.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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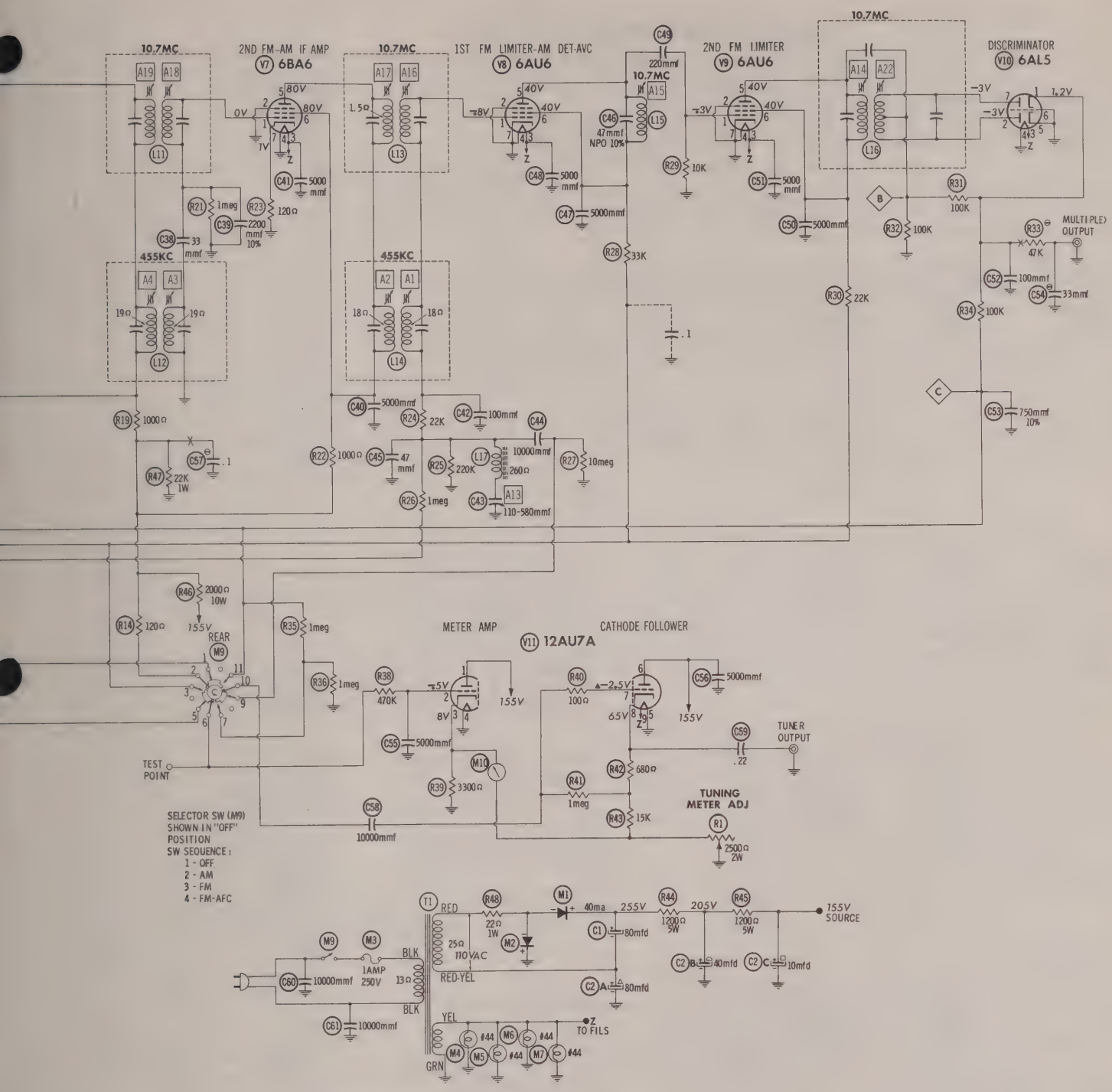


TUNING METER ADJUSTMENT (R1)

1. Remove FM Antenna.
2. Set Selector Switch to "FM" and tune to a point of no signal.
3. Adjust R1 until pointer is centered.

ALTEC LANSING
MODEL 306A

ALTEC LANSING
MODEL 306A

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
Suggested alignment tools: A1, A2, A3, A4, A5, A6..... General Cement #8606, 8606L
Walsco #2543, 2544
A14, A16, A17, A18, A19, A20, A21, A22....General Cement #8727
Walsco #2515
A10, A11, A15, A23, A24, A25, A26..... General Cement #9150, 8277, 8289, 8722, 5066, 8290, 8271, 8272, 8273, 8721, 9087, 5008, 8196, 8896, 8609
Walsco #2518, 2525, 2516, 2515, 2512, 2519
A7, A8, A9, A13, A27, A28..... General Cement #5003, 9105, 9106, 8276, 8607, 8821
Walsco #2515, 2520, 2525, 2523, 2538, 2534

AM ALIGNMENT

When adjusting A1 thru A6, connect a 20mmf capacitor across the opposite coil winding of the one being adjusted.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01mfd	High side to pin 7 (grid) of 6BE6 (V5). Low side to chassis.	455KC (400∿ Mod.)	AM	Tuning gang fully open	DC probe to point (A). Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2.		Loop	1400KC	"	1400KC	"	A7, A8, A9	Remove 20mmf capacitor. Adjust for maximum deflection.
3.		"	600KC	"	600KC	"	A10, A11, A12	Adjust for maximum deflection. Repeat steps 2 and 3.
4.		"	600KC (10KC Mod.)	"	600KC	AC probe to output jack. Common to chassis.	A13	Adjust for MINIMUM deflection.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.01mfd	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe thru 1meg to point (B). Common to chassis.	A14, A15 A16, A17 A18, A19 A20, A21	Adjust for maximum deflection
6.	"	"	"	"	"	DC probe to point (C). Common to chassis.	A22	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.01mfd	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. thru 27K to point (B). Low side to chassis.	A14, A15 A16, A17 A18, A19 A20, A21	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.	"	"	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A22	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

Adjust A26 and A27 for MINIMUM capacity and A28 so that screwdriver slot is perpendicular to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna terminal. Low side to chassis.	90MC (Unmod.)	FM	90MC	DC probe to point (A). Common to chassis.	A23, A24 A25	Adjust for maximum deflection.
8.	"	"	106MC	"	106MC	"	A26, A27 A28	Adjust for maximum deflection. Repeat steps 7 and 8.

FIG. 1

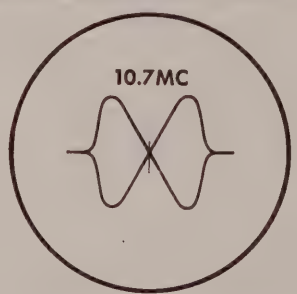
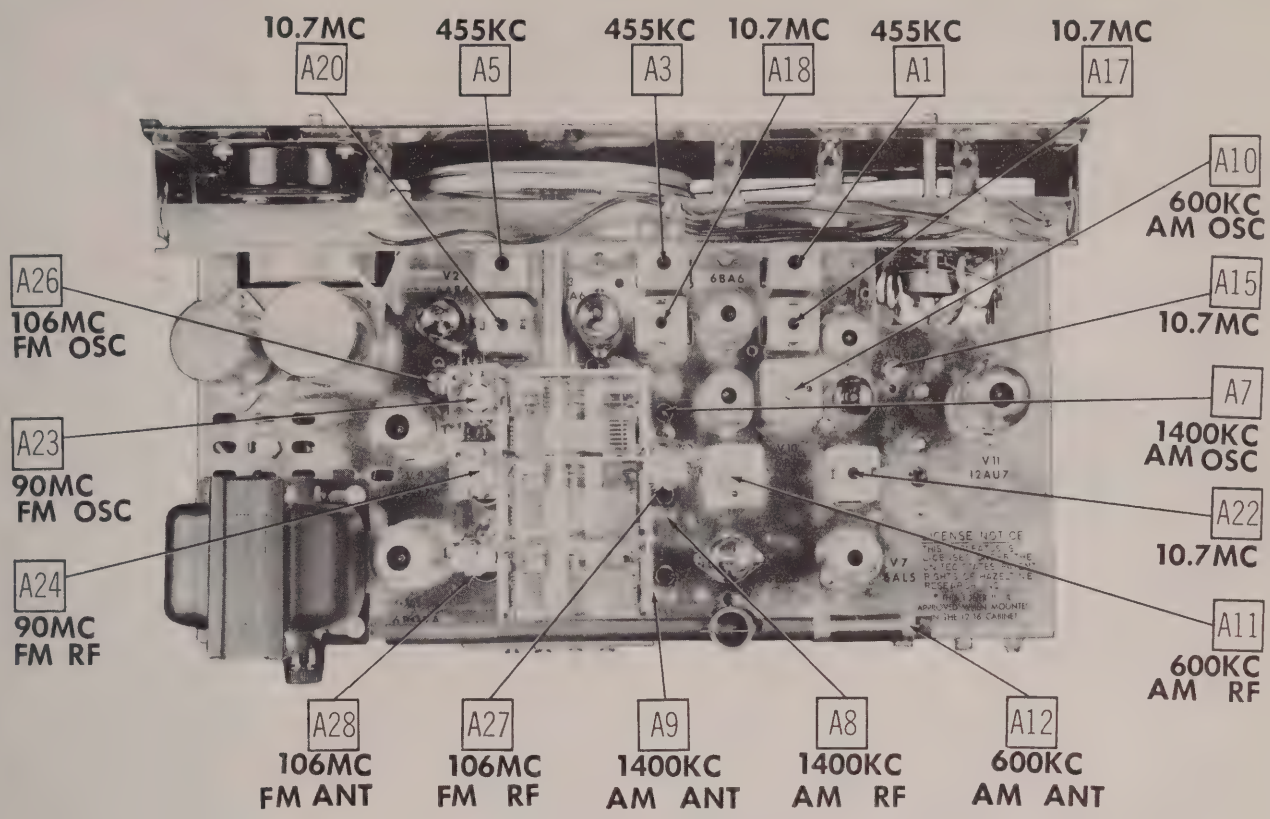
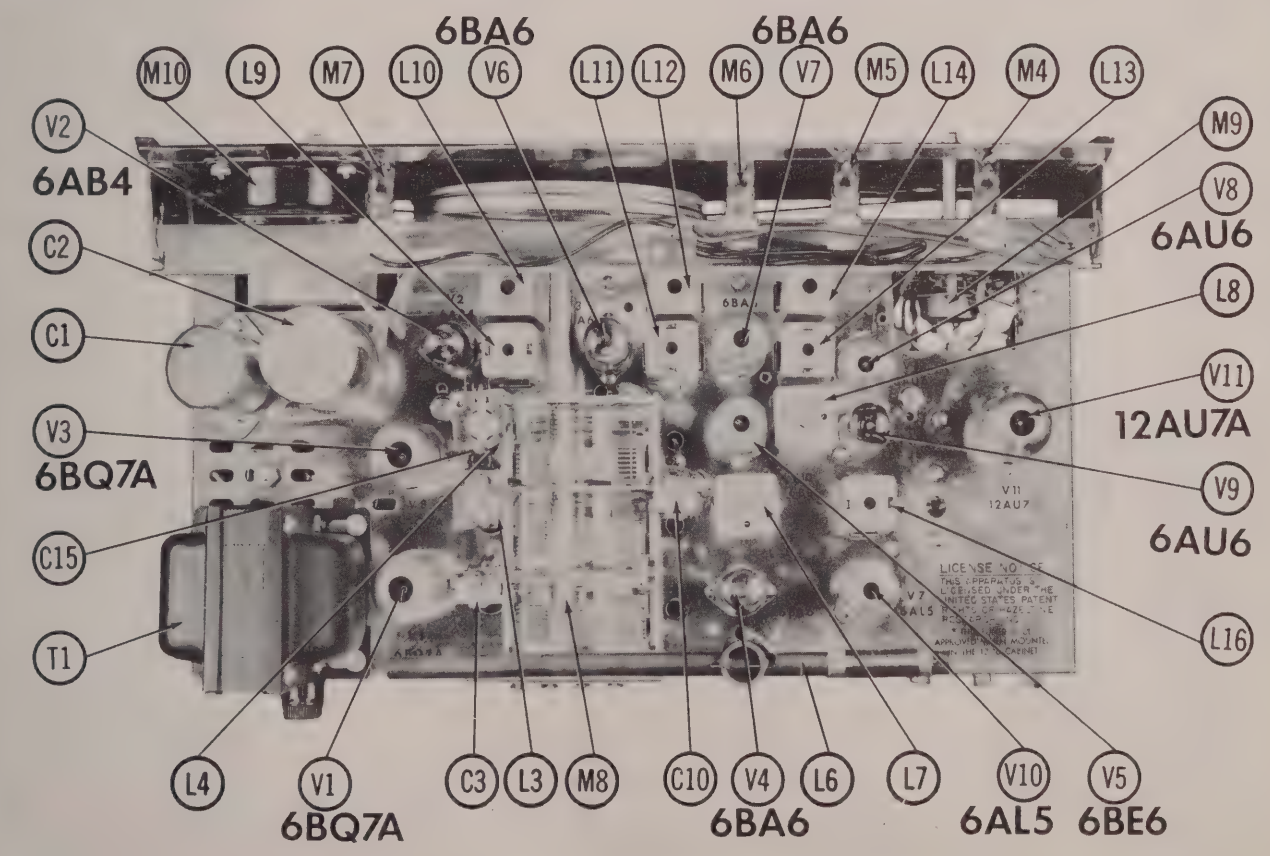


FIG. 2



CHASSIS TOP VIEW - ALIGN. IDENT.



CHASSIS - TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6BQ7A	
V2	FM Mixer	6AB4	
V3	FM Osc. - FM AFC	6BQ7A	
V4	AM RF Amplifier	6BA6	
V5	AM Converter	6BE6	
V6	1st FM-AM IF Amplifier	6BA6	
V7	2nd FM-AM IF Amplifier	6BA6	
V8	1st FM Limiter - AM Det. - AVC	6AU6	
V9	2nd FM Limiter	6AU6	
V10	Discriminator	6AL5	
V11	Meter Amp.-Cath. Follower	12AU7A	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Altec Lansing PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	80	200		AFH1-31	A0310	FP128	TMS-33	S-155	TVL-1530
C2A	▲80	200		AFH3-148	C1050	FP370	TMT-145	T-730	TVL-3761
B	▲40	450							
C	■10	450							

FIXED CAPACITORS

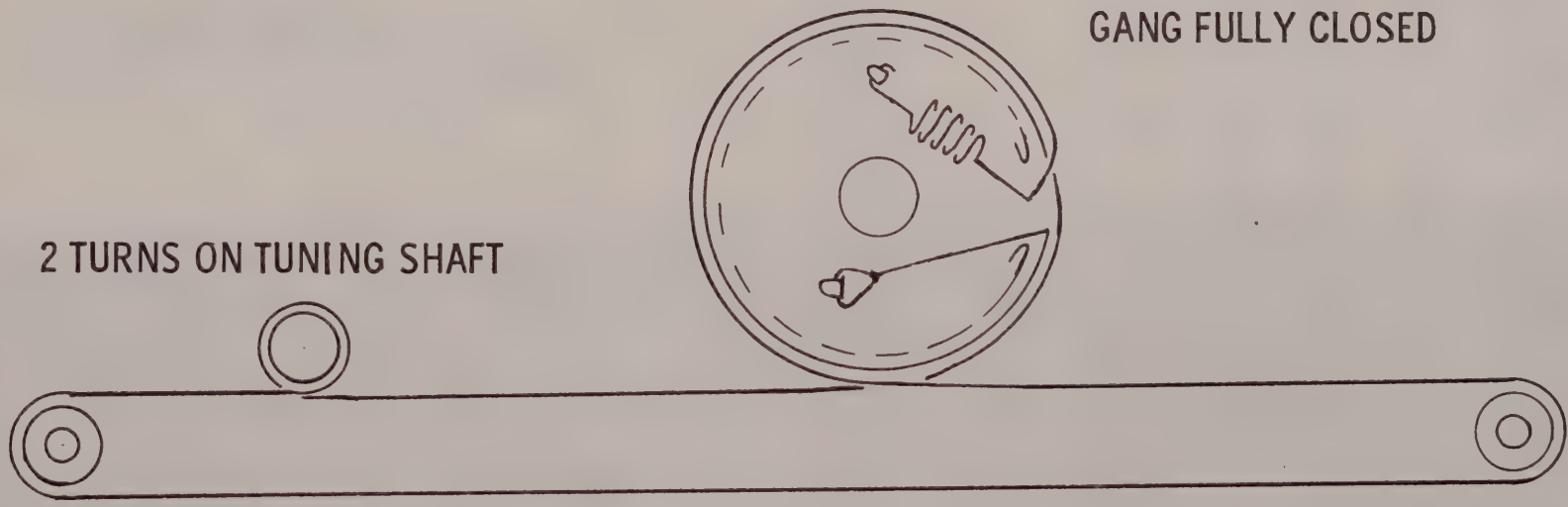
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Altec Lansing PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	4.5-25								
C4	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C5	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C6	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C7	100			BPD-0001	DD-101	L10T1	CNO-310	5GA-T1	
C8	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C9	100			BPD-0001	DD-101	L10T1	CNO-310	5GA-T1	
C10	1.5-7								
C11	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C12	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C13	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C14	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Altec Lansing PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C15	47			NPO-DI 47	DTZ-47	C10Q47C		5TCC-Q47	NPO 10%
C16	3.3			N750-SI 3.3	TCN-3R3				N750 10%
C17	500			BPD-0005	DD-501	L10T5	B-350	5GA-T5	
C18	.5-5								
C19	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C20	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C21	500			BPD-0005	DD-501	L10T5	B-350	5GA-T5	
C22	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C23	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C24	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C25	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C26	330			SI 330	D6-331	LT6T33	UC-5333	5GA-T33	
C27	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C28	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C29	5			NPO-SI 5			ZT-555		NPO 10%
C30	330			SI 330	D6-331	LT6T33	UC-5333	5GA-T33	
C31	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C32	100			BPD-0001	DD-101	L10T1	CNO-310	5GA-T1	
C33	10			SI 10	D6-100	LT6Q1	UC-541	5GA-Q1	①
C34	22			SI 22	D6-220	LT6Q22	UC-5422	5GA-Q22	
C35	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C36	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C37	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C38	33			SI 33	D6-330	LT6Q33	UC-5433	5GA-Q33	
C39	2200								10%
C40	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C41	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C42	100			BPD-0001	DD-101	L10T1	B-310	5GA-T1	
C43	110-580								
C44	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C45	47			SI 47	D6-470	LT6Q47	UC-5447	5GA-Q47	
C46	47			NPO-DI 47	TCZ-47	CTA6Q47C		5TCC-Q47	NPO 10%
C47	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C48	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C49	220			SI 220	D6-221	LT6T22	UC-5322	5GA-T22	
C50	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C51	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C52	100			BPD-0001	DD-101	L10T1	CNO-310	5GA-T1	
C53	750						JL-375		10%
C54	33			SI 33	D6-330	LT6Q33	UC-5433	5GA-Q33	②
C55	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C56	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C57	.1	400		P488N-1	DF-103	CUB4P1	GEM-401	4TM-P1	②
C58	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C59	.22	400		P488N-22		CUB4P22	GEM-4022	4TM-P22	
C60	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C61	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	

① Some versions may use 5mmf in this application. ② Not used in some versions.



DIAL CORD STRINGING

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Altec Lansing PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	2500Ω	2(WW)	39-000		39-3000		FL-2.5K	Tuning Meter Adjust

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	Altec Lansing PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.042A		1234AH	D-5420	58-D	
M2	.042A		1234AH	D-5420		

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Altec Lansing PART No.	NOTES
	OHMS	WATT		
R2	470K			
R3	68Ω			
R4	47Ω			
R5	470Ω			
R6	470K			
R7	1000Ω			
R8	4700Ω			
R9	1000Ω			
R10	120Ω			
R11	1meg			
R12	1500Ω			
R13	1meg			
R14	120Ω			
R15	120Ω			
R16	1meg			
R17	22K			
R18	470K			
R19	1000Ω			
R20	120Ω			
R21	1meg			
R22	1000Ω			
R23	120Ω			
R24	22K			
R25	220K			

ITEM No.	RATING		Altec Lansing PART No.	NOTES
	OHMS	WATT		
R26	1meg			
R27	10meg			
R28	33K			
R29	10K			
R30	22K			
R31	100K			
R32	100K			
R33	47K			Note 1
R34	100K			
R35	1meg			
R36	1meg			
R37	1meg			
R38	470K			
R39	3300Ω			
R40	100Ω			
R41	1meg			
R42	680Ω			
R43	15K			
R44	1200Ω	5		
R45	1200Ω	5		
R46	2000Ω	10		
R47	22K	1		
R48	22Ω	1		

Note 1. Not used in some versions.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Altec Lansing PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	3AG	1A 250V			312001. (3AG 1A 250V)	342001	AGC1	HKP

MISCELLANEOUS

ITEM No.	PART NAME	Altec Lansing PART No.	NOTES
M4	Lamp		#44
M5	Lamp		#44
M6	Lamp		#44
M7	Lamp		#44
M8	Tuning Cap.	12257	6 Gang (AM Sections: Ant. 9-393mmf, RF 9-387mmf, Osc. 10-169mmf)
M9	Switch	12112	Selector, 4 Position, Rotary, Wafer Type
M10	Tuning Meter	12355	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Altec Lansing PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Coil	12341					
L2	RF Choke	12342					4.7 Microhenries
L3	FM RF Coil	12343					
L4	FM Osc. Coil	12344					
L5	RF Choke	12362					4.6 Microhenries
L6	Loopstick	12147					
L7	AM RF Coil	12350					
L8	AM Osc. Coil	12351					
L9	1st FM IF	12346					
L10	1st AM IF	12352	16-6758	BC-352	12-C1	RF-1	
L11	2nd FM IF	12347	16-3487	FM-254	1463		
L12	2nd AM IF	12353	16-6758	BC-353	12-C2	RF-2	
L13	3rd FM IF	12348	16-3487	FM-254	1463		
L14	3rd AM IF	12353	16-6758	BC-353	12-C2	RF-2	
L15	FM Limiter	12345					
L16	Discriminator	12349	17-3494	FM-253	1464		
L17	10KC Choke	17211					700 Millihenries

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	Altec Lansing PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .36A	110V	6.3V @ 3.6A	6166						

WIRING DATA

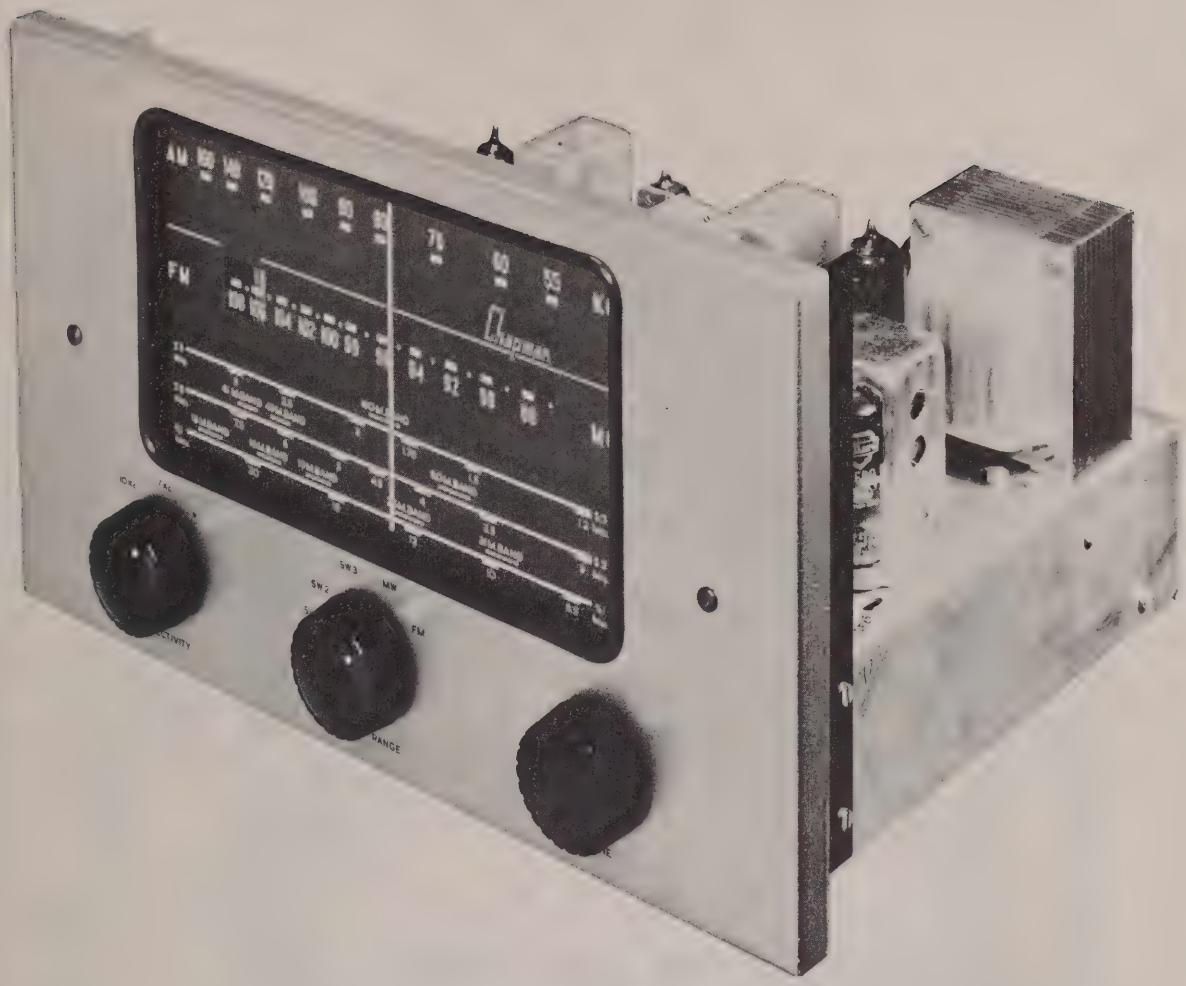
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT* Folder

CHAPMAN
MODEL CT-100

CHAPMAN
MODEL CT-100



CHAPMAN
MODEL CT-100

TRADE NAME	Chapman Model CT-100
IMPORTER	Ercona Corp., 16 W. 46th Street, New York 36, N. Y.
TYPE SET	AC Operated FM-BC-SW Receiver
TUBES	Ten
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 40 Watts, .41 Amp. @ 117 Volts AC

TUNING RANGES

BROADCAST (MW)	535-1620KC	SHORT WAVE I	1.2-3.0MC
FREQ. MOD.	88-108MC	SHORT WAVE II	3.0-8.5MC
		SHORT WAVE III	8.5-22MC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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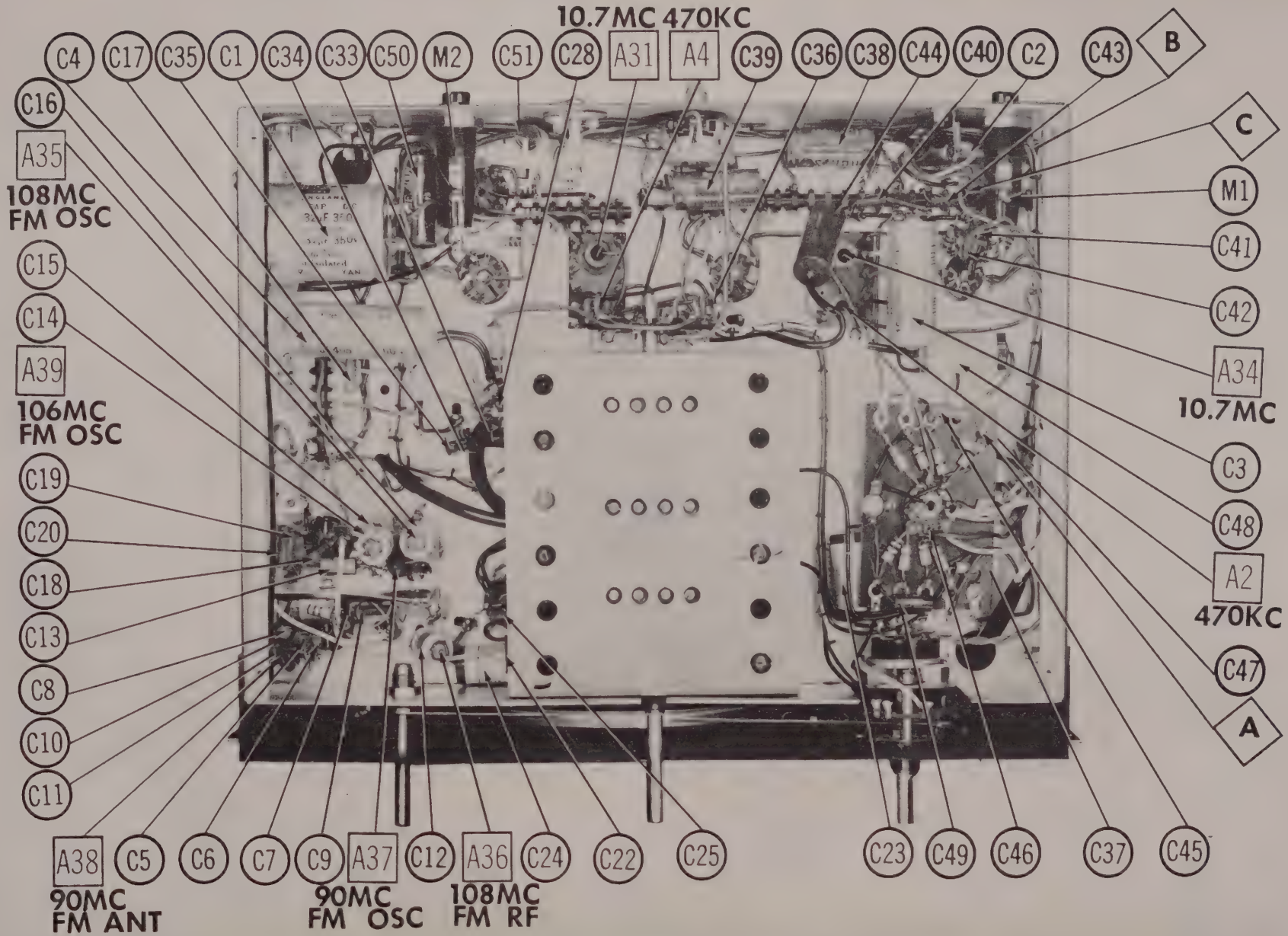
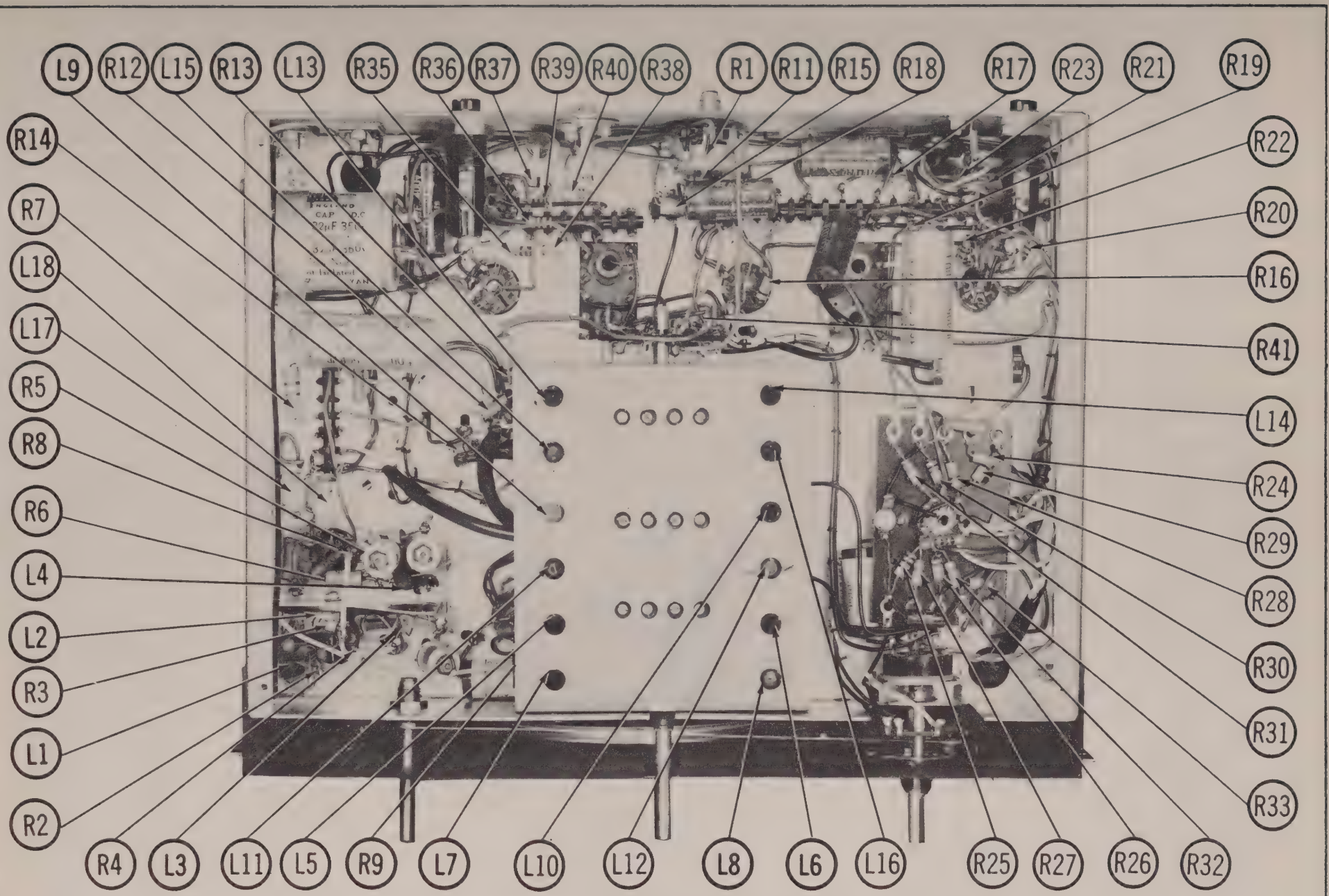
H867

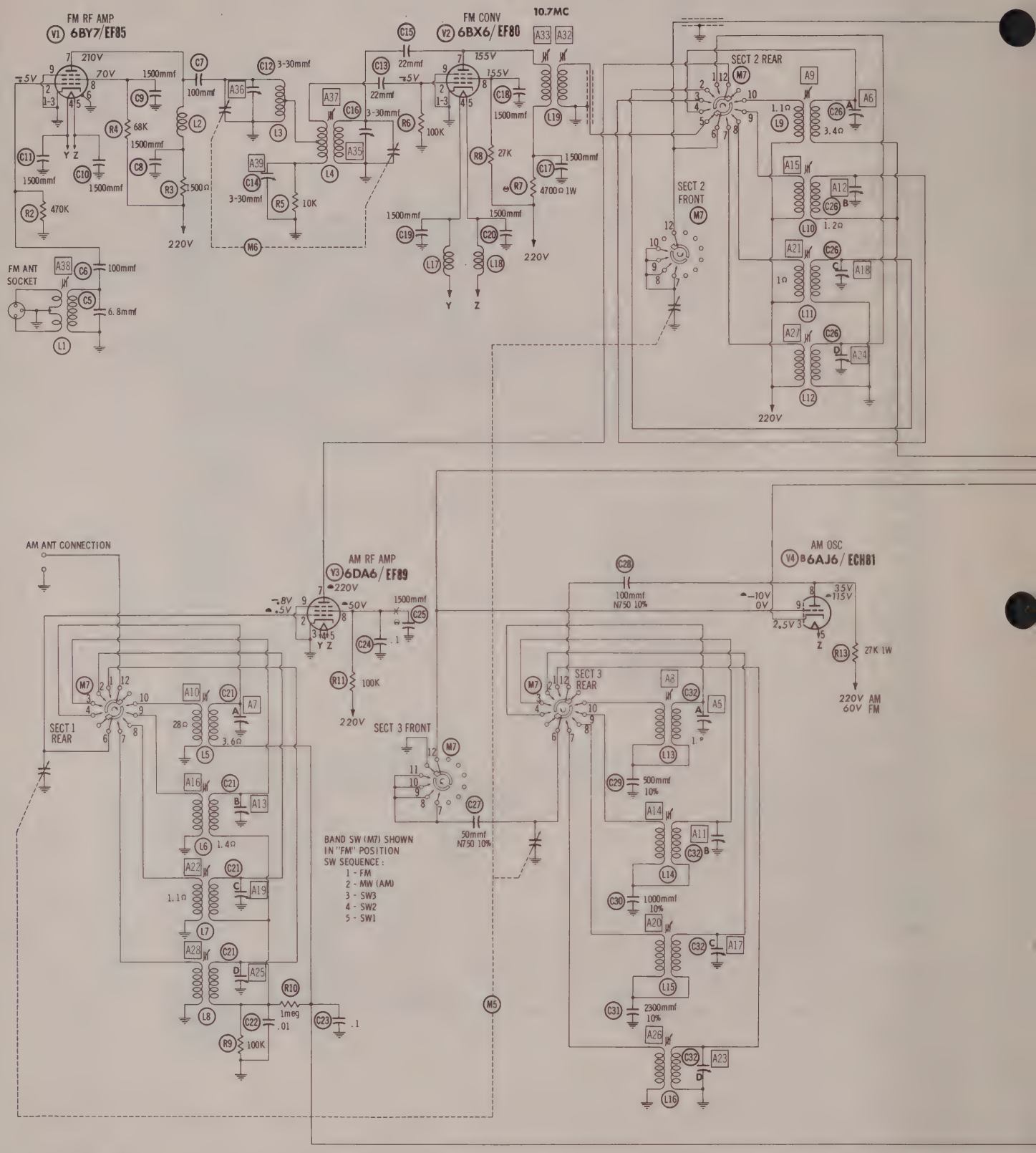
SET 431 FOLDER 5



CHASSIS BOTTOM VIEW - CAPACITOR, MISC. & ALIGNMENT IDENT.



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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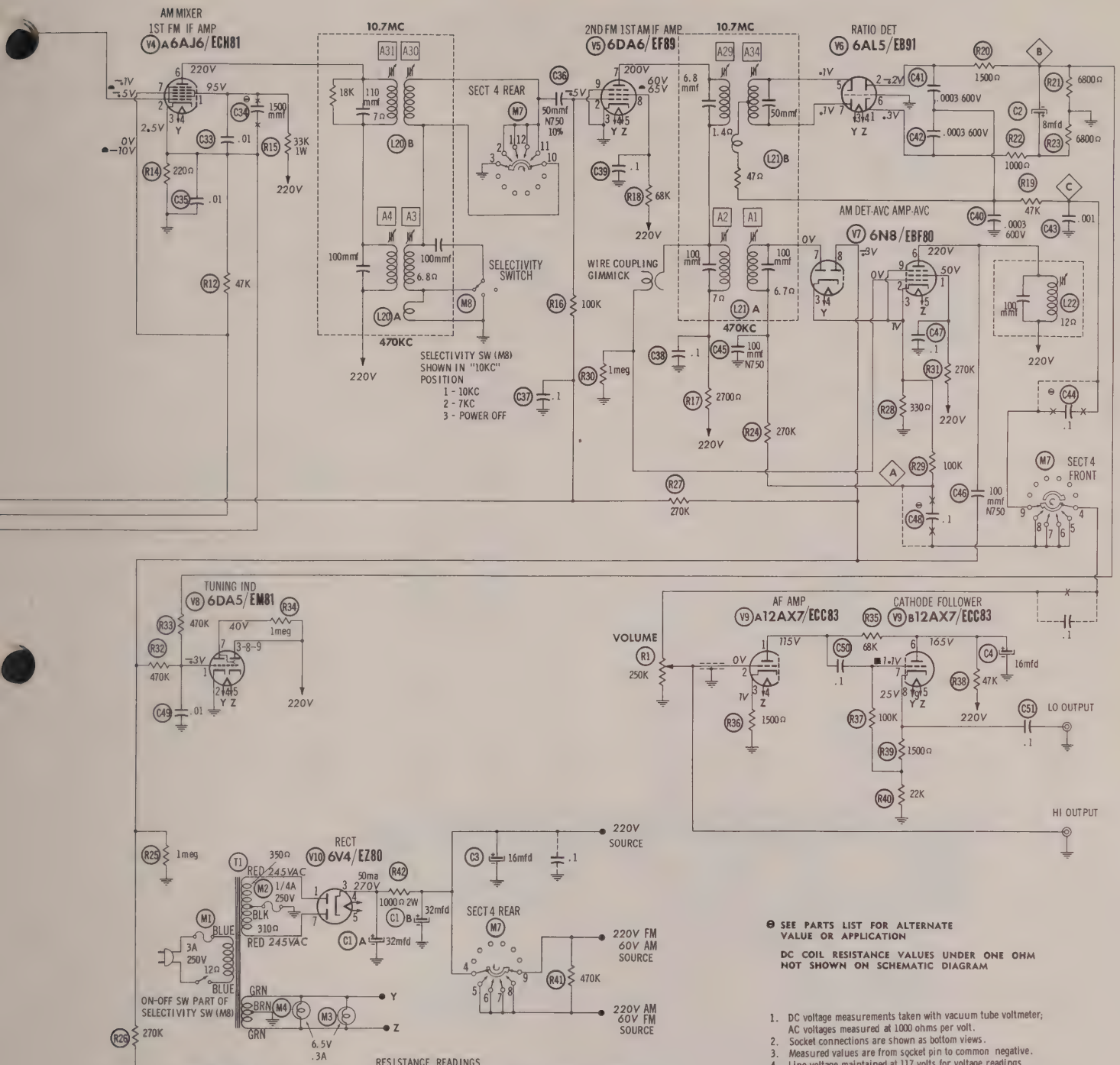


⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BY7 EF85	0Ω	470K	0Ω	.1Ω	.1Ω	0Ω	†2500Ω	†70K	0Ω
V2	6BX6 EF80	0Ω	100K	0Ω	.1Ω	.1Ω	0Ω	†5700Ω	†28K	0Ω
V3	6DA6 EF89	0Ω	INF ▲1.1meg	0Ω	.1Ω	.1Ω	0Ω	INF ▲†1000Ω	†100K	0Ω
V4	6AJ8 ECH81	†33K	.1Ω ▲1meg	220Ω	.1Ω	.1Ω	†1000Ω	0Ω ▲47K	†28K	0Ω ▲47K
V5	6DA6 EF89	0Ω	1.3meg	0Ω	.1Ω	.1Ω	0Ω	†3700Ω	†70K	0Ω
V6	6AL5 EB91	7800Ω	8200Ω	.1Ω	.1Ω	INF	0Ω	INF		
V7	6N8 EBF80	†270K	1meg	330Ω	.1Ω	.1Ω	†1000Ω	370K	1meg	330Ω
V8	6DA5 EM81	280K	0Ω	†1000Ω	.1Ω	.1Ω	NC	†1meg	†1000Ω	†1000Ω
V9	12AX7 ECC83	†115K	0Ω	1500Ω	.1Ω	.1Ω	†48K	122K	Z3K	.1Ω
V10	6V4 EZ80	350Ω	NC	¶	.1Ω	.1Ω	NC	310Ω	NC	NC

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

† MEASURED FROM PIN 3 OF V10.

▲ MEASURED IN "AM" POSITION.

■ MEASURED FROM PIN 8 OF V9.

NC NO CONNECTION.

CHAPMAN MODEL CT-100

ALIGNMENT INSTRUCTIONS - AM

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

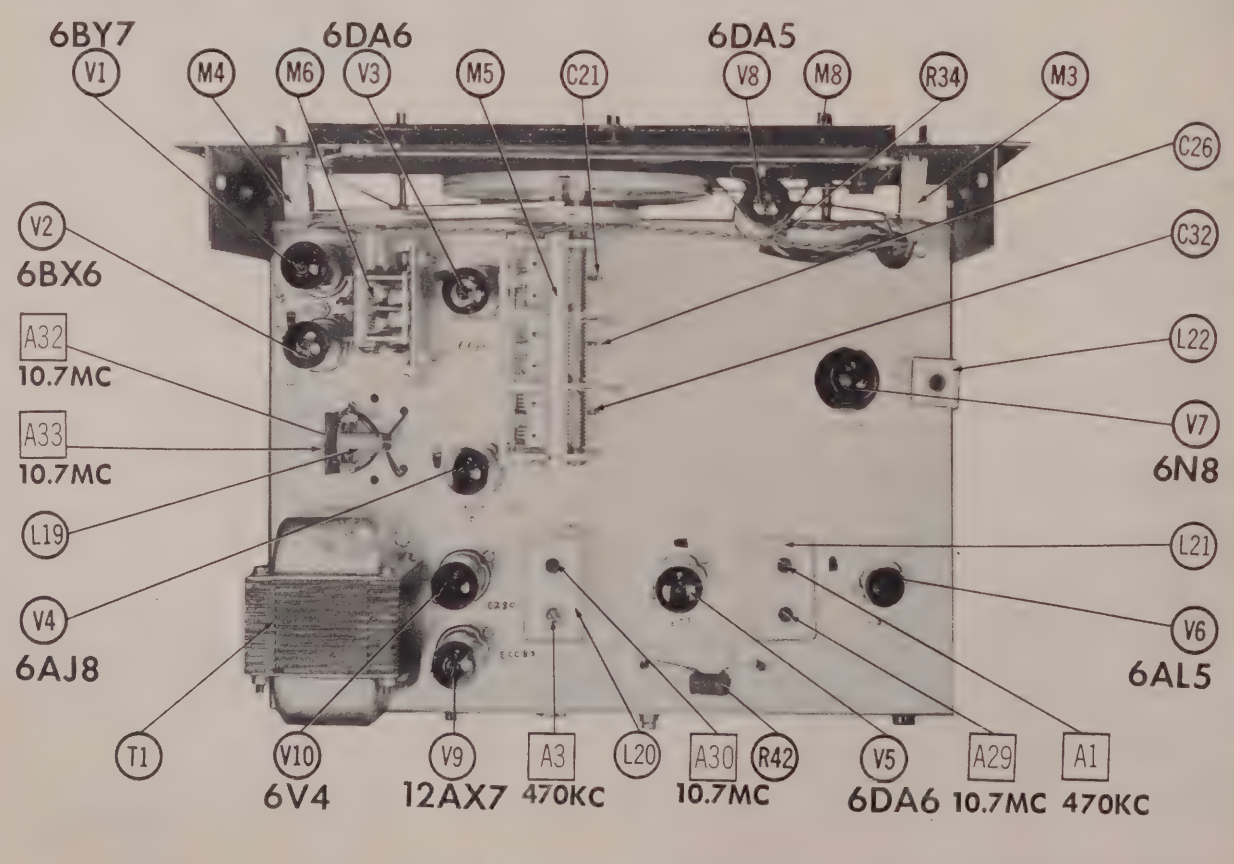
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools: A1, A2, A3, A4, A29, A30, A31,
A32, A33, A38, A14, A26, A15,
A27, A16, A28, A8, A20, A9,
A21, A10, A22, A37..... General Cement #8282, 8606, 8606L, 9091
Walsco #2526, 2541, 2543, 2544

A5, A6, A7, A11, A12, A13,
A17, A18, A19, A23, A24, A25..... General Cement #5000, 5003, 5014, 5015, 5016, 8276, 8290
Walsco #2512, 2515, 2522, 2523, 2525, 2537

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01mfd	High side to AM RF stator lug of tuning gang. Low side to chassis.	470KC (400% Mod.)	MW 7KC Position	Tuning gang fully open	DC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	High side to AM antenna terminal. Low side to chassis.	1600KC	"	1600KC	"	A5, A6, A7	"
3.	"	"	600KC	"	600KC	"	A8, A9, A10	Adjust for maximum output. Repeat steps 2 and 3.
4.	"	"	3MC	SW I	3MC	"	A11, A12 A13	"
5.	"	"	1.2MC	"	1.2MC	"	A14, A15, A16	Adjust for maximum output. Repeat steps 4 and 5.
6.	"	"	8.5MC	SW II	8.5MC	"	A17, A18, A19	"
7.	"	"	3.0MC	"	3.0MC	"	A20, A21, A22	Adjust for maximum output. Repeat steps 6 and 7.
8.	"	"	22MC	SW III	22MC	"	A23, A24, A25	"
9.	"	"	8.5MC	"	8.5MC	"	A26, A27, A28	"



CHASSIS-TOP VIEW

ALIGNMENT INSTRUCTIONS - FM

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
10.	200mmf	High side to pin 2 (grid) of EF80 (V2). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe to point (B). Common to chassis.	A29, A30, A31, A32, A33	Adjust for maximum output.
11.	"	"	"	"	"	DC probe to point (C). Common to chassis.	A34	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
10.	200mmf	High side to pin 2 (grid) of EF80 (V2). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point (B). Low side to chassis.	A29, A30, A31, A32, A33	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
11.	"	"	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A34	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A29 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
12.	270Ω Carbon Resistor	Across FM antenna receptacle.	108MC (Unmod.)	FM	108MC	DC probe to point (B). Common to chassis.	A35, A36	Adjust for maximum output.
13.	"	"	90MC	"	90MC	"	A37, A38	"
14.	"	"	90MC	"	90MC	"	L3	Adjust for maximum output by compressing or expanding coil turns.
15.	"	"	106MC	"	106MC	"	A39	Adjust for MINIMUM output.

FIG. 1

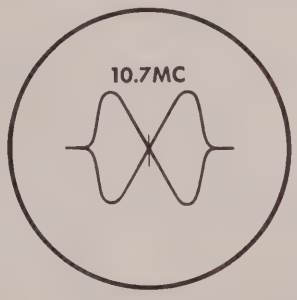
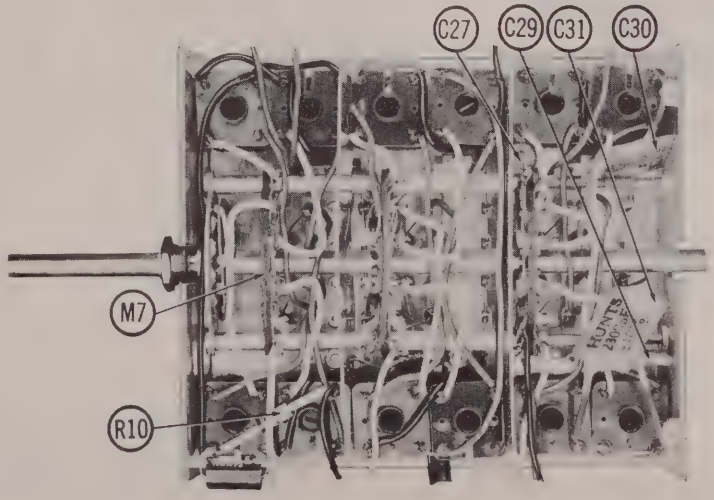


FIG. 2



BANDSWITCH

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amplifier	6BY7/EF85
V2	FM Converter	6BX6/EF80
V3	AM RF Amplifier	6DA6/EF89
V4	1st FM IF Amplifier - AM Mixer - AM Osc.	6AJ8/ECH81
V5	2nd FM - 1st AM IF Amp.	6DA6/EF89
V6	Ratio Detector	6AL5/EB91
V7	AM Det.-AVC Amp.-AVC	6N8/EBF80
V8	Tuning Indicator	6DA5/EM81
V9	AF Amp. - Cath. Follower	12AX7/ECC83
V10	Rectifier	6V4/EZ80

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA CHAPMAN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	32	350		AFH2-54	B0430	FP237	TMD-52	D-225	TVL-2759
B	32	350							
C2	8	150		PRS150V8	BBR8-150	TC41	TD-8-150	MT-1508	TVA-1405
C3	16	350		PRS350V16	BR1635	TC64	TD-16-350	MT-3516	TVA-1607
C4	16	350		PRS350V16	BR1635	TC64	TD-16-350	MT-3516	TVA-1607

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA CHAPMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	6.8			NPO-SI 6.8	TCZ-6R8	LT6V68	ZT-5568	5TCCB-V68	
C6	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C7	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C8	1500			SI 1500	D6-152	LT6D15	UC-5215	5HK-D15	
C9	1500			SI 1500	D6-152	LT6D15	UC-5215	5HK-D15	
C10	1500			SI 1500	D6-152	LT6D15	UC-5215	5HK-D15	
C11	1500			SI 1500	D6-152	LT6D15	UC-5215	5HK-D15	
C12	3-30								
C13	22			SI 22	D6-220	LT6Q22	UC-5422	5TCC-Q22	
C14	3-30								
C15	22			SI 22	D6-220	LT6Q22	UC-5422	5TCC-Q22	
C16	3-30								
C17	1500			SI 1500	D6-152	LT6D15	UC-5215	5HK-D15	
C18	1500			SI 1500	D6-152	LT6D15	UC-5215	5HK-D15	
C19	1500			SI 1500	D6-152	LT6D15	UC-5215	5HK-D15	
C20	1500			SI 1500	D6-152	LT6D15	UC-5215	5HK-D15	
C21A									
B									
C									
D									

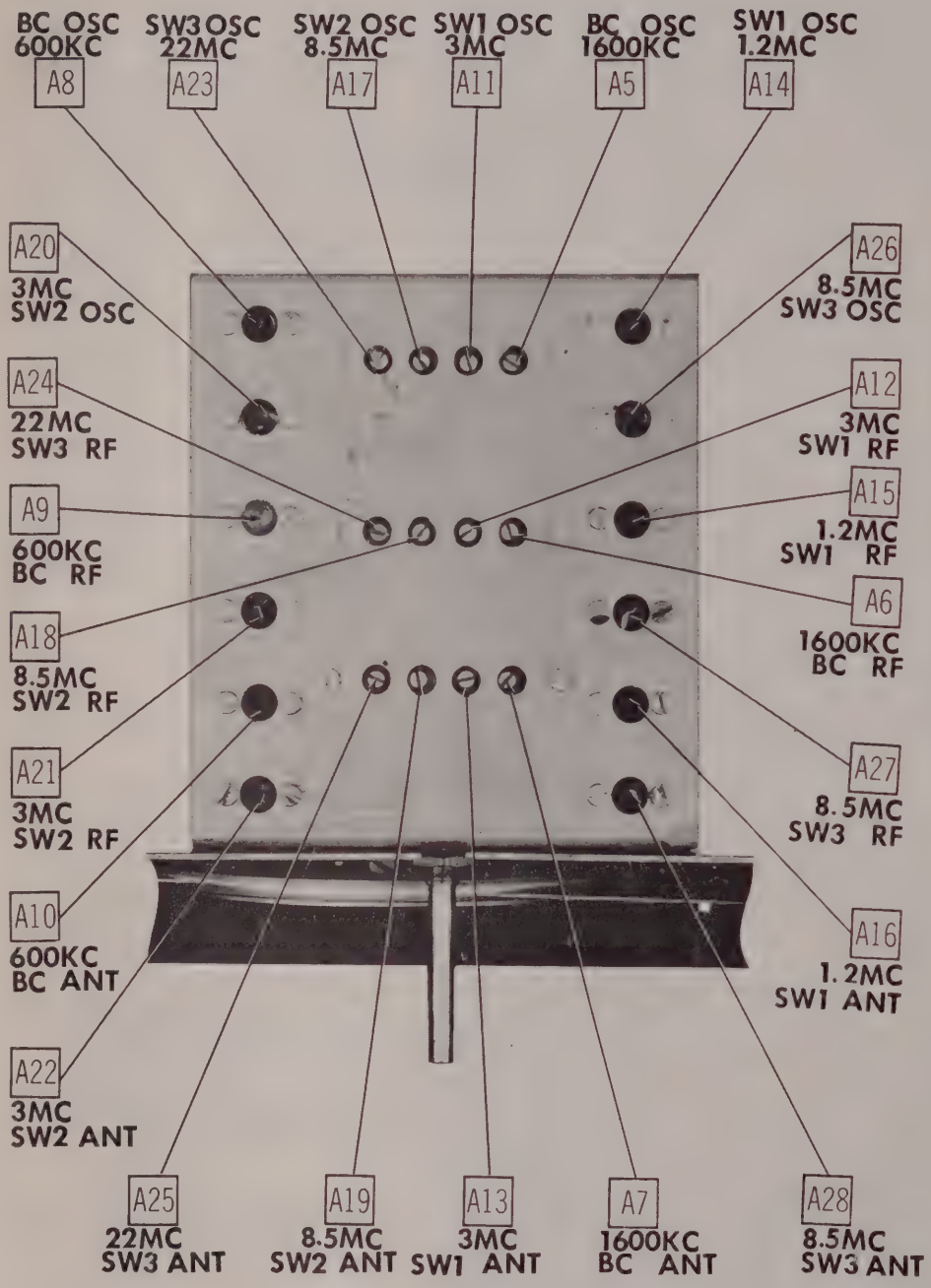
CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA CHAPMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C22	.01	400		P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C23	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C24	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C25	1500			SI 1500	D6-152	LT6D15	UC-5215	5HK-D15	①
C26A									
B									
C									
D									
C27	50			N750-SI 50	TCN-50				N750 10%
C28	100			N750-SI 100	TCN-100	CTA6T1U	NT-531	5TCU-T1	N750 10%
C29	500				MD-501				10%
C30	1000						JL-210		10%
C31	2300								10%
C32A									
B									
C									
D									
C33	.01	400		P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C34	1500			SI 1500	D6-152	LT6D15	UC-5215	5HK-D15	①
C35	.01	150		P288N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C36	50			N750-SI50	TCN-50				N750 10%
C37	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C38	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C39	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C40	.0003	600			D6-301				
C41	.0003	600			D6-301				
C42	.0003	600			D6-301				
C43	.001	400		P488N-001	D6-102	CUB6D1	GEM-421	6TM-D1	
C44	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	①
C45	100			N750-SI 100	TCN-100	CTA6T1U	NT-531	5TCU-T1	N750
C46	100			N750-SI 100	TCN-100	CTA6T1U	NT-531	5TCU-T1	N750
C47	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C48	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	①
C49	.01	400		P488N-01	DD-103	CUB4S1	GEM-411	4TM-S1	
C50	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C51	.1	150		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	

① Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CHAPMAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	250K	½	X86	AB-51	A47-250K-2	Q13-130	U44	Volume (Pre-Set)
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	



ANTENNA, RF & OSCILLATOR ALIGNMENT IDENT.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	CHAPMAN PART No.	NOTES
R2	470K			
R3	1500Ω			
R4	68K			
R5	10K			
R6	100K			
R7	4700Ω	1		Note 1
R8	27K			
R9	100K			
R10	1meg			
R11	100K			
R12	47K			
R13	27K	1		
R14	220Ω			
R15	33K	1		
R16	100K			
R17	2700Ω			
R18	68K			
R19	47K			
R20	1500Ω			
R21	6800Ω			
R22	1000Ω			

ITEM No.	RATING OHMS	RATING WATT	CHAPMAN PART No.	NOTES
R23	6800Ω			
R24	270K			
R25	1meg			
R26	270K			
R27	270K			
R28	330Ω			
R29	100K			
R30	1meg			
R31	270K			
R32	470K			
R33	470K			
R34	1meg			
R35	68K			
R36	1500Ω			
R37	100K			
R38	47K			
R39	1500Ω			
R40	22K			
R41	470K			
R42	1000Ω	2		

Note 1. Some versions may use 12K in this application.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA CHAPMAN PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Trans.						
L2	RF Choke		19-1002	BC-563	4606		2.3 Microhenries
L3	FM RF Coil						
L4	FM Osc. Coil						
L5	BC Ant. Coil						
L6	SW 3 Ant. Coil						1.2-3MC
L7	SW 2 Ant. Coil						3-7.5MC
L8	SW 1 Ant. Coil						8.5-20MC
L9	BC RF Coil						
L10	SW 3 RF Coil						1.2-3MC
L11	SW 2 RF Coil						3-7.5MC
L12	SW 1 RF Coil						8.5-20MC
L13	BC Osc. Coil						
L14	SW 3 Osc. Coil						1.2-3MC
L15	SW 2 Osc. Coil						3-7.5MC
L16	SW 1 Osc. Coil						8.5-20MC
L17	Fil. Choke		19-1002	BC-563	4606		2.3 Microhenries
L18	Fil. Choke		19-1002	BC-563	4606		2.3 Microhenries
L19	1st FM IF Trans.						
L20A	1st AM IF Trans.						
B	2nd FM IF Trans.						
L21A	2nd AM IF Trans.						
B	Ratio Detector						
L22	470KC Trap						

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA CHAPMAN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .41A	520VCT @ .050A	6.3VCT @ 3.3A							

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA CHAPMAN PART No. FUSE	CHAPMAN PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	3A 250V			312003. (3AG 3A 250V)	342001	AGC3	HKP
M2	3AG	1/4A 250V			312. 250 (3AG 1/4A 250V	342001	AGC1/4	HKP

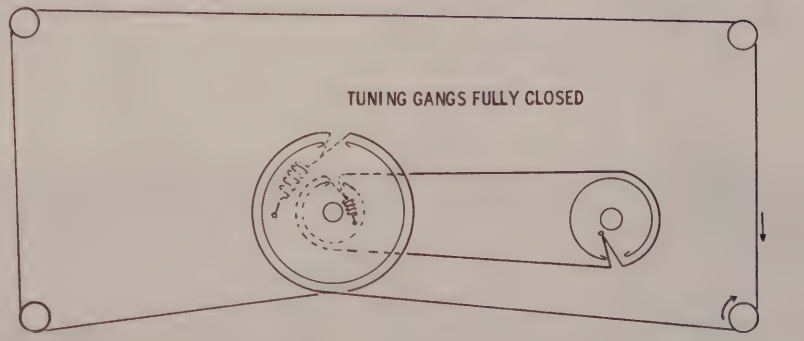
MISCELLANEOUS

ITEM No.	PART NAME	CHAPMAN PART No.	NOTES
M3	Lamp		Phillips, 6.5V, 0.3A
M4	Lamp		Phillips, 6.5V, 0.3A
M5	Tuning Cap.		AM (Ant. 4-537mmf, RF 4-534mmf, Osc. 5-537mmf)
M6	Tuning Cap.		FM, 2 Gang
M7	Switch		Band
M8	Switch		Power, On-Off, Selectivity

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



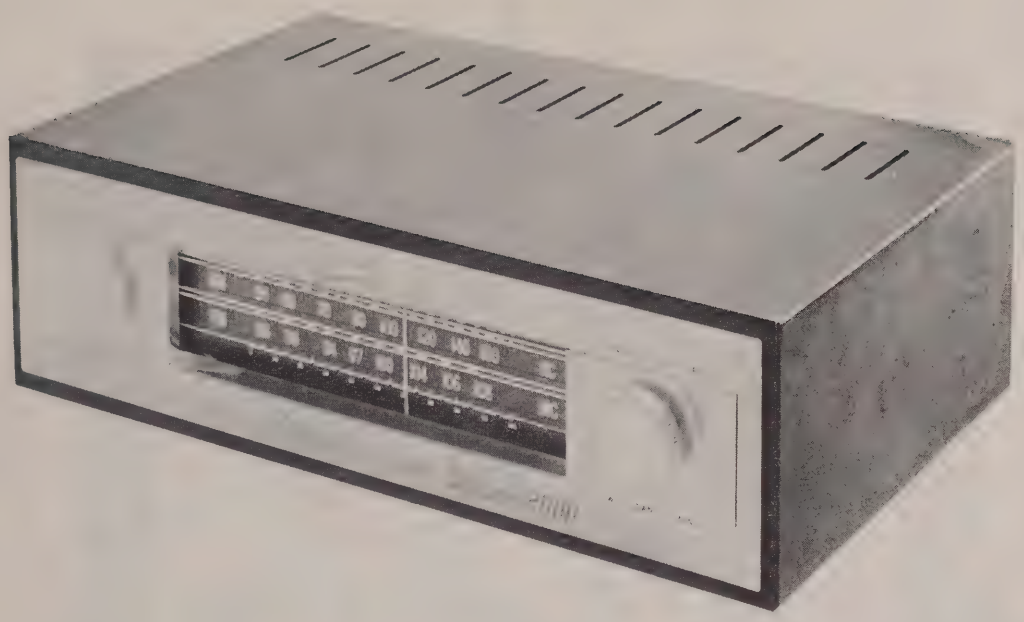
DIAL CORD STRINGING

PHOTOFACT* Folder

EIA

DYNAMIC
MODEL T-2000

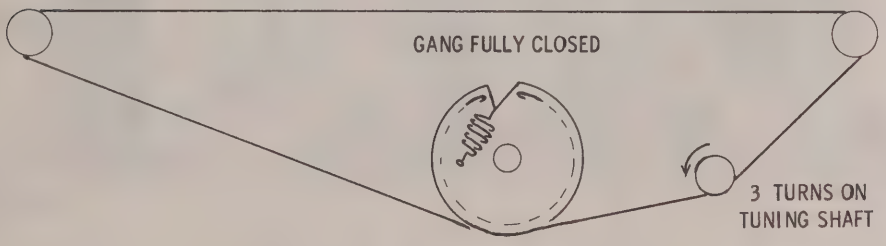
DYNAMIC
MODEL T-2000



DYNAMIC
MODEL T-2000

TRADE NAME	Dynamic Model T-2000		
MANUFACTURER	Dynamic Electronics, 73-39 Woodhaven Blvd., Forest Hills, L. I., N. Y.		
TYPE SET	AC Operated FM-AM Tuner		
TUBES	Seven		
POWER SUPPLY	105-125 Volts AC-60 Cycles	RATING	27 Watts, .28 Amp @ 117 Volts AC
TUNING RANGE - BROADCAST	540-1650KC	FREQUENCY MOD.	88-108MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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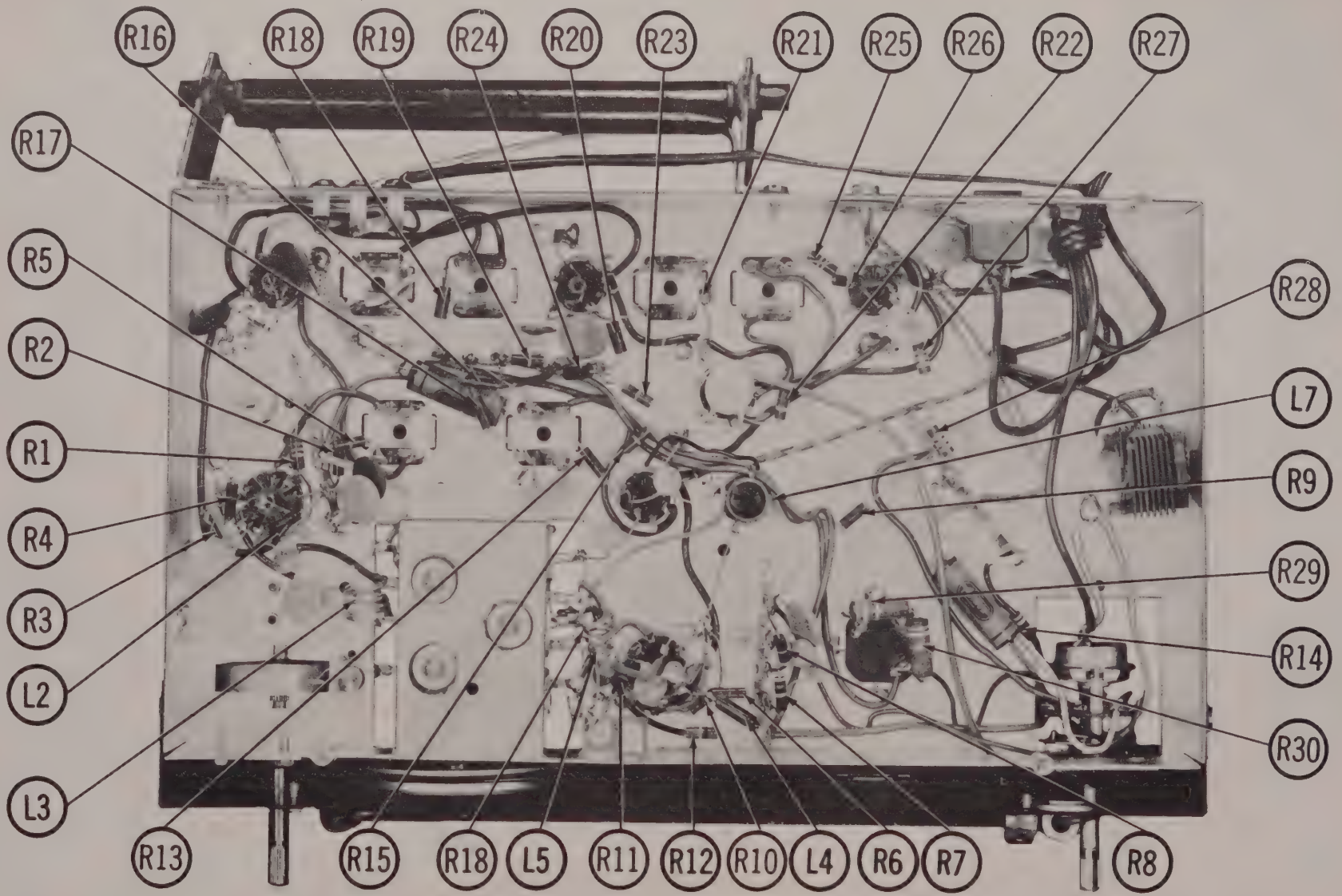
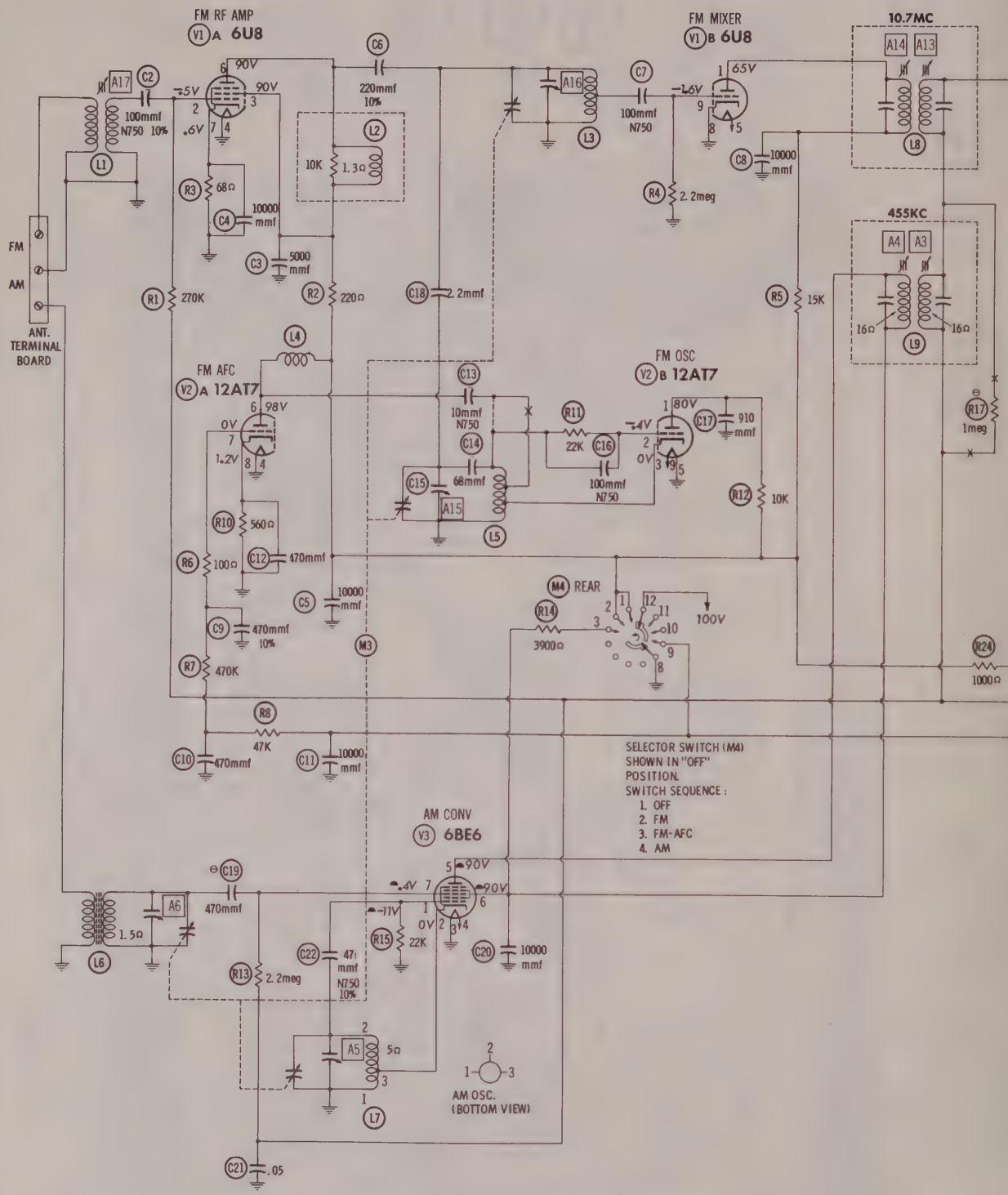


CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

CHASSIS BOTTOM VIEW - CAPACITOR, MISC & ALIGN IDENT

DYNAMIC
MODEL T-2000

FOLDER 9



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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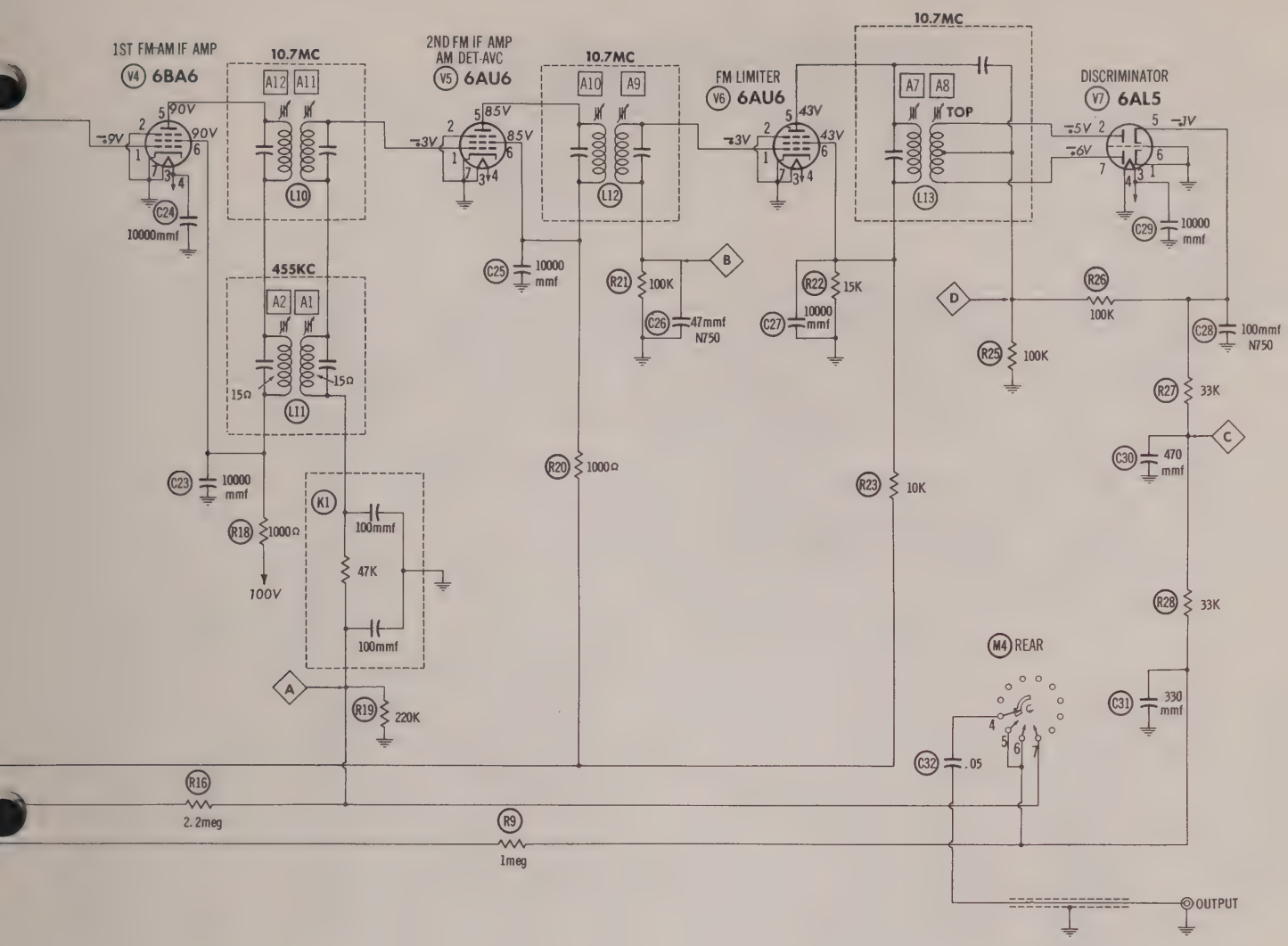
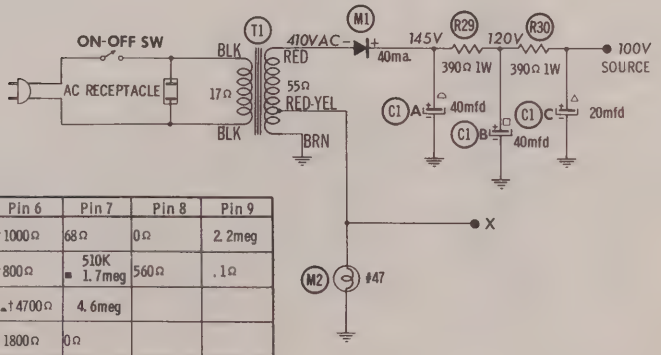




RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6U8	†15K	2.7meg	†1000Ω	0Ω	.1Ω	†1000Ω	68Ω	0Ω	2.2meg
V2	12AT7 ECC81	†10K	22K	0Ω	0Ω	0Ω	†800Ω	▪ 510K 1.7meg	560Ω	.1Ω
V3	6BE6	▲ 22K	▲ .9Ω	0Ω	.1Ω	▲ †4700Ω	▲ †4700Ω	4.6meg		
V4	6BA6	2.4meg	0Ω	0Ω	.1Ω	†1800Ω	†1800Ω	0Ω		
V5	6AU6	265K	0Ω	0Ω	.1Ω	†2800Ω	†2800Ω	0Ω		
V6	6AU6	100K	0Ω	0Ω	.1Ω	†11K	†11K	0Ω		
V7	6AL5	0Ω	100K	.1Ω	0Ω	160K	0Ω	100K		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM OUTPUT OF M1.
▲ MEASURED IN "AM" POSITION.
▪ MEASURED IN "FM-AFC" POSITION.

DYNAMIC
MODEL T-2000

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.

Suggested alignment tools:

A1, A2, A3, A4, A7, A8, A9, A10, A11, A12, A13, A14.....	General Cement #5097, 8727 Walsco #2515
A15, A17.....	General Cement #8721, 8722 Walsco #2519
A5, A6, A16.....	General Cement #5004, 5008, 5009 Walsco #2520

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01mfd	High side to Pin 7 (grid) of 6BE6 (V3). Low side to chassis	455KC (400∿ Mod.)	AM	Tuning gang fully open	DC probe to point Ⓐ. Common to chassis	A1, A2, A3, A4	Adjust for maximum deflection
2.	"	"	1600KC	"	1600KC	"	A5	"
3.	"	High side to AM antenna terminal. Low side to chassis	1400KC	"	Tune for 1400KC signal	"	A6	"

FM IF ALIGNMENT, USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	200mmf	High side to Pin 1 (grid) of 6AU6 (V6). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe to point Ⓒ. Common to chassis	A7	Adjust for maximum deflection
5.	"	"	"	"	"	DC probe thru 1meg to point Ⓓ. Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
6.	"	High side to Pin 9 (grid) of 6U8 (V1). Low side to chassis.	"	"	"	DC probe to point Ⓑ. Common to chassis.	A9, A10, A11, A12, A13, A14	Adjust for maximum deflection

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
4.	200mmf	High side to Pin 1 (grid) of 6AU6 (V6). Low side to chassis	10.7MC (450KC SWP)	FM	Point of non-interference	Vert. amp to point Ⓒ. Low side to chassis.	A7	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. amp thru 27K to point Ⓓ. Low side to chassis.	A8	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.
6.	"	"	"	"	"	Vert. amp to point Ⓑ. Low side to chassis.	A9, A10, A11, A12, A13, A14	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7.	270Ω Carbon Resistor	To FM Ant. terminals with 270Ω in high side.	106MC (Unmod.)	FM	106MC	DC probe to point Ⓒ. Common to chassis.	A15, A16	Adjust for maximum deflection.
8.	"	"	90MC	"	90MC	"	L5, L3	Adjust for maximum output by compressing or expanding coil turns.
9.	"	"	95MC	"	Tune for 95MC signal	"	A17	"

FIG. 1

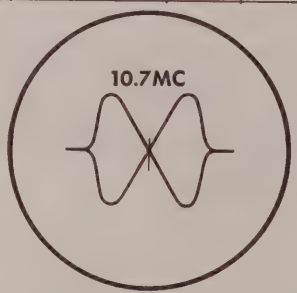
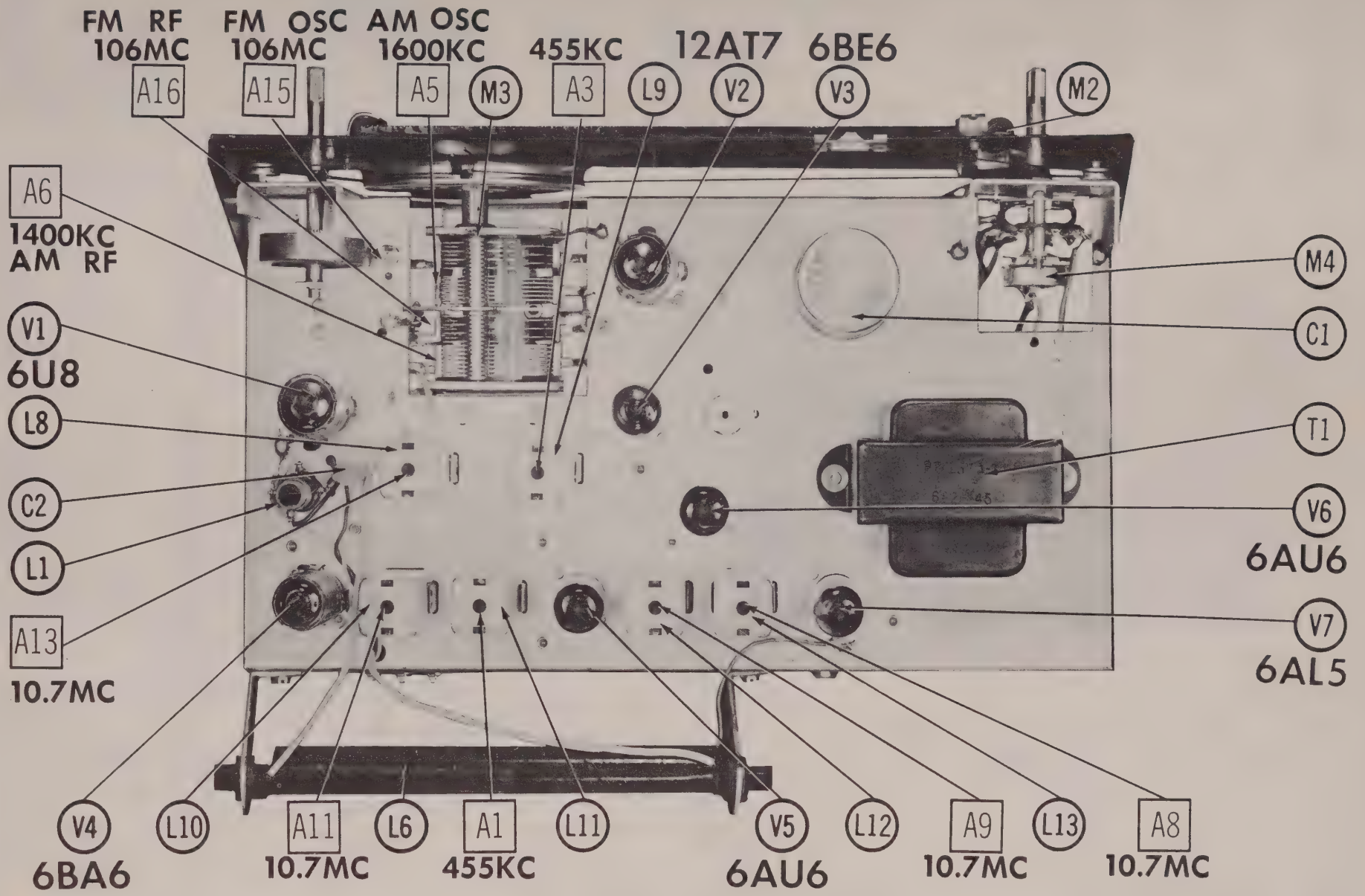


FIG. 2



CHASSIS - TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Mixer	6U8
V2	FM Osc. -FM AFC	12AT7/ECC81
V3	AM Converter	6BE6
V4	1st FM-AM IF Amp	6BA6
V5	2nd FM IF Amp. -AM Det.-AVC	6AU6
V6	FM Limiter	6AU6
V7	Discriminator	6AL5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA DYNAMIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	200			C0150	FP320	TMT-19	T-440	TVLS-3482.1*
B	■40	200			BR3025	TC55	TD-30-250	MT-4530	
C	▲20	200							

* Not normally in distributors stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA DYNAMIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	100			N750-D1100	DTN-100	C10T1U	NT-531	5TCU-T1	N750 10%
C3	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C4	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C5	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C6	220				DD-221	L10T22		MS-322	10%
C7	100			N750-D1100	DTN-100	C10T1U	NT-531	5TCU-T1	N750
C8	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C9	470				D6-471	5R5T47		MS-347	10%
C10	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C11	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C12	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C13	10			N750-D110	DTN-10	C10Q1U	NT-541	5TCU-Q1	N750
C14	68			S168	D6-680	LT6Q68	UC-5468	5GA-Q68	
C15									
C16	100			N750-D1100	DTN-100	C10T1U	NT-531	5TCU-T1	N750
C17	910								
C18	2.2			NPO-S12.2	TCZ-2R2	CTA6V22C		5TCCB-V22	
C19	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	①
C20	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C21	.05	200		P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C22	47			N750-D147	DTN-47	C10Q47U	ZT-5447	5TCU-Q47	N750 10%
C23	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C24	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C25	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C26	47			N750-D147	DTN-47	C10Q47U	ZT-5447	5TCU-Q47	N750
C27	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C28	100			N750-D1100	DTN-100	C10T1U	NT-531	5TCU-T1	N750
C29	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C30	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C31	330			BPD-00033	DD-331	L10T33	UC-5333	5GA-T33	
C32	.05	200		P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	

① Some versions use 10000mmf in this application.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	DYNAMIC PART No.	NOTES
R1	270K			
R2	220Ω			
R3	68Ω			
R4	2.2meg			
R5	15K			
R6	100Ω			
R7	470K			
R8	47K			
R9	1meg			
R10	560Ω			
R11	22K			
R12	10K			
R13	2.2meg			
R14	3900Ω			
R15	22K			
R16	2.2meg			

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	DYNAMIC PART No.	NOTES
R17	1meg			①
R18	1000Ω			
R19	220K			
R20	1000Ω			
R21	100K			
R22	15K			
R23	10K			
R24	1000Ω			
R25	100K			
R26	100K			
R27	33K			
R28	33K			
R29	390Ω	1		
R30	390Ω	1		

① Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA DYNAMIC PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil						4.7 Microhenries, wound on 10K
L2	RF Choke						
L3	FM RF Coil						2.7 Microhenries
L4	RF Choke						
L5	FM Osc. Coil						
L6	Loopstick						
L7	AM Osc. Coil		14-1055 *				* Drill new mtg. hole
L8	1st FM IF		16-3487	FM-254	1463		
L9	1st AM IF		16-6758	BC-352	12-C1	RF-1	
L10	2nd FM IF		16-3487	FM-254	1463		
L11	2nd AM IF		16-6758	BC-353	12-C2	RF-2	
L12	3rd FM IF		16-3487	FM-254	1463		
L13	Discriminator		17-3494	FM-253	1464		

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA DYNAMIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .28A	120V @ .040A Tap @ 6.3V @ 2.3A		PT-157A-1	P9102	P-3045		PA8421	26R38	R-30X

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	DYNAMIC PART No.	REPLACEMENT DATA
K1	Det. RF Filter	100mmf, 100mmf, 47K		Aerovox PA-97-1 Centralab PC-50 Cornell-Dubilier 11TM1 Sprague D-1

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA DYNAMIC PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.040A	80188-2	1234AH	T065 SD-94 ①	65A K200 ①	① Silicon Type

MISCELLANEOUS

ITEM No.	PART NAME	DYNAMIC PART No.	NOTES
M2	Lamp		#47
M3	Tuning Cap.		AM-FM, 4 Gang (AM Sections: Ant. 12-249mmf, Osc. 13-125mmf)
M4	Switch		Selector, 4 Position (Rotary Wafer Type)

WIRING DATA

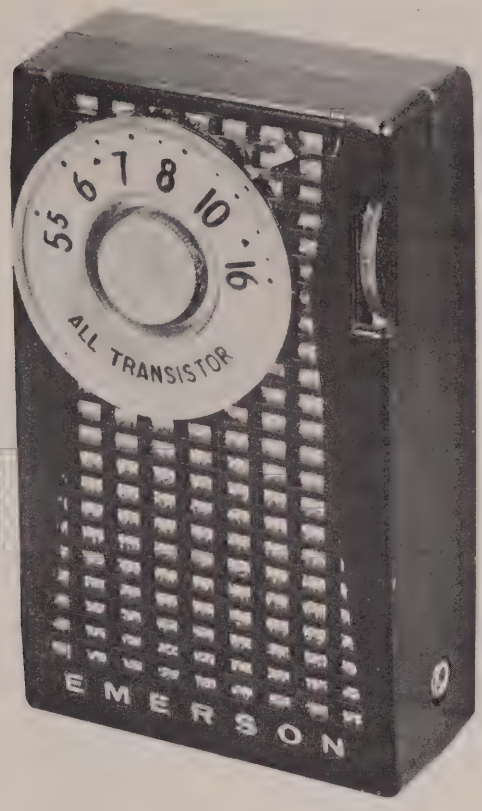
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

EMERSON
MODEL 999



TRADE NAME	Emerson Model 999 "Champion"
MANUFACTURER	Emerson Radio & Phono Corp., 14th & Coles Streets, Jersey City 2, N. J.
TYPE SET	Battery Operated Portable Transistorized AM Receiver
POWER SUPPLY	9 Volts DC
RATING	10.5 MA @ 9 Volts (Signal, Normal Volume)
TUNING RANGE—BROADCAST	540 - 1620 KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Use fresh battery.
Suggested alignment tools: A1, A2, A3, A6. . . . General Cement #9291, 9294
Walsco #2522, 2520, 2538
A4, A5. . . . . General Cement #8607, 9105, 5004, 5008, 5016, 9106, 9294, 8989, 8897, 8821, 8729
Walsco #2520, 2515, 2537, 2523, 2522, 2538

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1638KC	"	"	A4, A5	"
3.		"	600KC	600KC	"	A6	Adjust for maximum output while rocking tuning gang. Repeat Steps 2 & 3. For optimum results, repeat Steps 1, 2 & 3.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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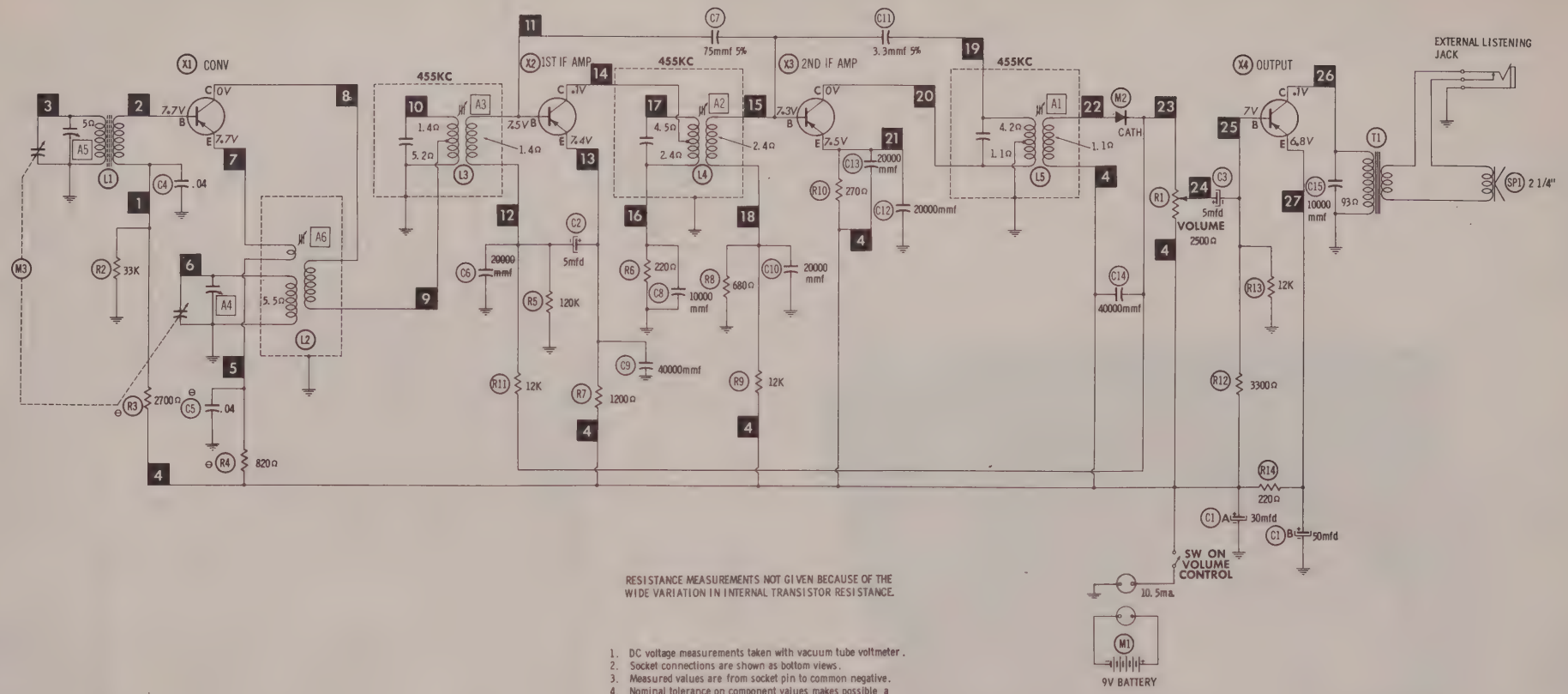
H833

EMERSON MODEL 999
EMERSON MODEL 999
SET 431 FOLDER 7



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum. no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE®

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EMERSON MODEL 999

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	MFGR. PART NO.	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	815036	Converter			2N486		PNP
X2	815037	1st IF Amplifier			2N483		PNP
X3	815037	2nd IF Amplifier			2N482		PNP
X4	815038	Output			2N631		PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	30	10	925445						TVL-2250
B	50	10							
C2	5	3	925449	XPP-3005	NL5-6	TT6X5	ML5-6		TE-1052.2
C3	5	3	925446	XPP-3005	NL5-6	TT6X5	ML5-6		TE-1052.2

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	.04	50	923097						①
C5	.04	50	923097						
C6	20000		928988						5%
C7	75		928981						
C8	10000		928137					TG-S10	
C9	40000		928983						
C10	20000		928988						
C11	3.3		928982	NPO-DI3.3	DTZ-3R3	C10V33C	ZT-5533	5TCCB-V33	5%
C12	20000		928988						
C13	20000		928988						
C14	40000		928983						
C15	10000		928137					TG-S10	

① Some versions use 20000mmf in this application (Part #928988).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	EMERSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	2500Ω	½	390577					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		EMERSON PART No.	NOTES
	OHMS	WATT		
R2	33K		340852	
R3	2700Ω		340592	①
R4	820Ω		340472	②
R5	120K		340992	
R6	220Ω		350332	
R7	1200Ω		340512	
R8	680Ω		340452	

ITEM No.	RATING		EMERSON PART No.	NOTES
	OHMS	WATT		
R9	12K		340752	
R10	270Ω		340352	
R11	12K		340752	
R12	3300Ω		340612	
R13	12K		340752	
R14	220Ω		340332	

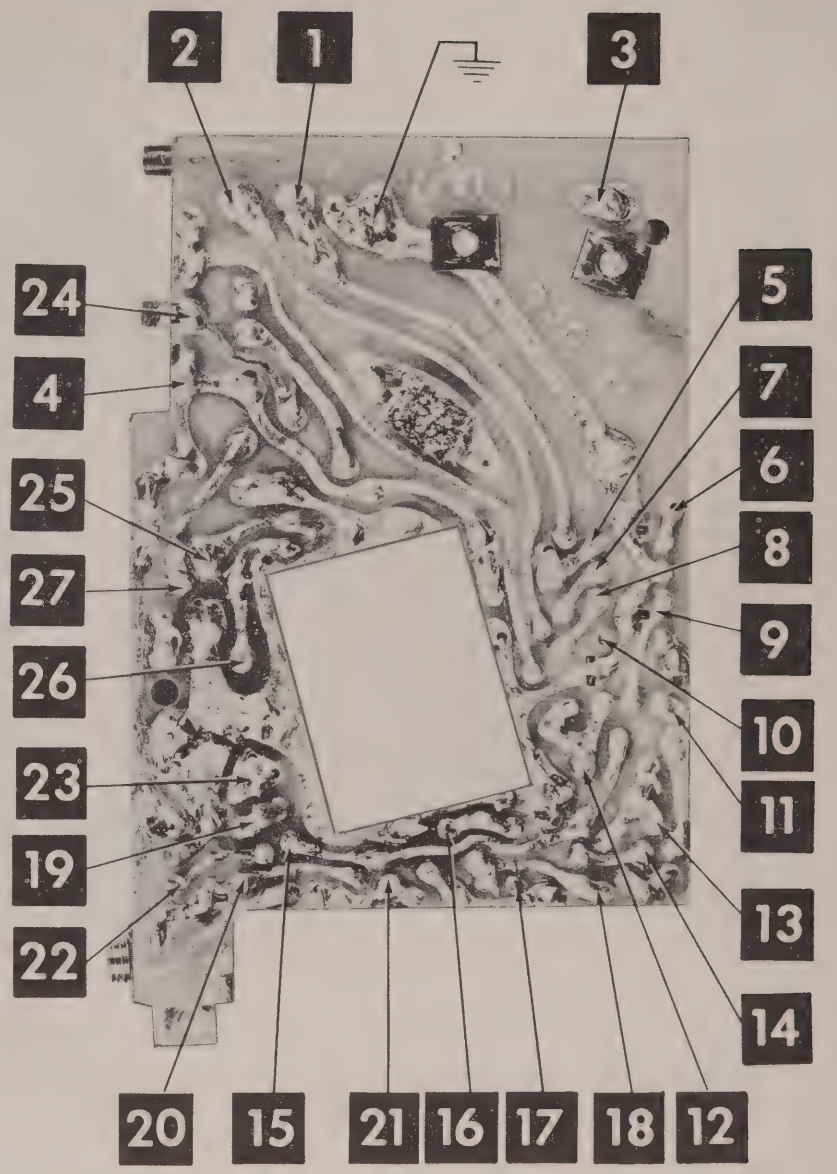
① Some versions use 6800Ω in this application (Part #340692). ② Some versions use 2700Ω in this application (Part #340592).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		EMERSON PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	700137					
L2	Osc. Coil	716123					
L3	1st IF	720323					
L4	2nd IF	720324					
L5	3rd IF	720325					

PRINTED BOARD

A Howard W. Sams CIRCUITRACE* Photo



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	EMERSON PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	900Ω	9Ω	734169	GH107			TA-25			

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	EMERSON PART No.	QUAM PART No.	
SP1	2 1/4"	PM	9Ω	180186		

BATTERIES

ITEM No.	VOLTAGE	EMERSON PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			2U6		216		TR-146R	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		EMERSON PART No.	CBS PART No.	SYLVANIA PART No.	
M2		817075	1N60	1N295	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M3	Tuning Cap. Printed Board	900177 630231	2 Gang

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob Knob	461012 461013	Tuning Off-On-Volume

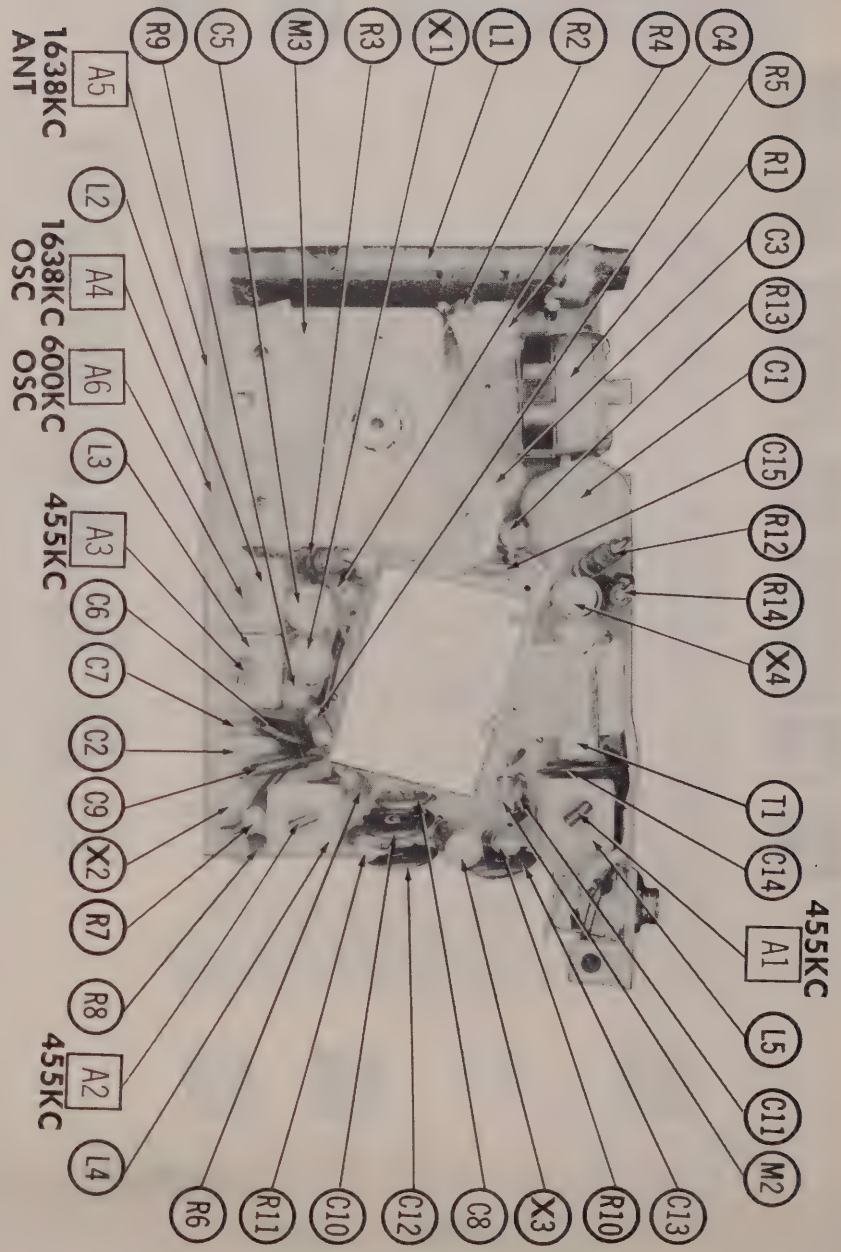
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

DISASSEMBLY

1. Insert coin or similar item into slot at bottom of cabinet. Twist coin and remove cabinet back.
2. Remove battery.
3. Remove screw from center of tuning knob. Remove knob.
4. Remove screw under tuning knob.
5. Remove screw from bottom of battery compartment.
6. Remove chassis.

CHASSIS—TOP VIEW



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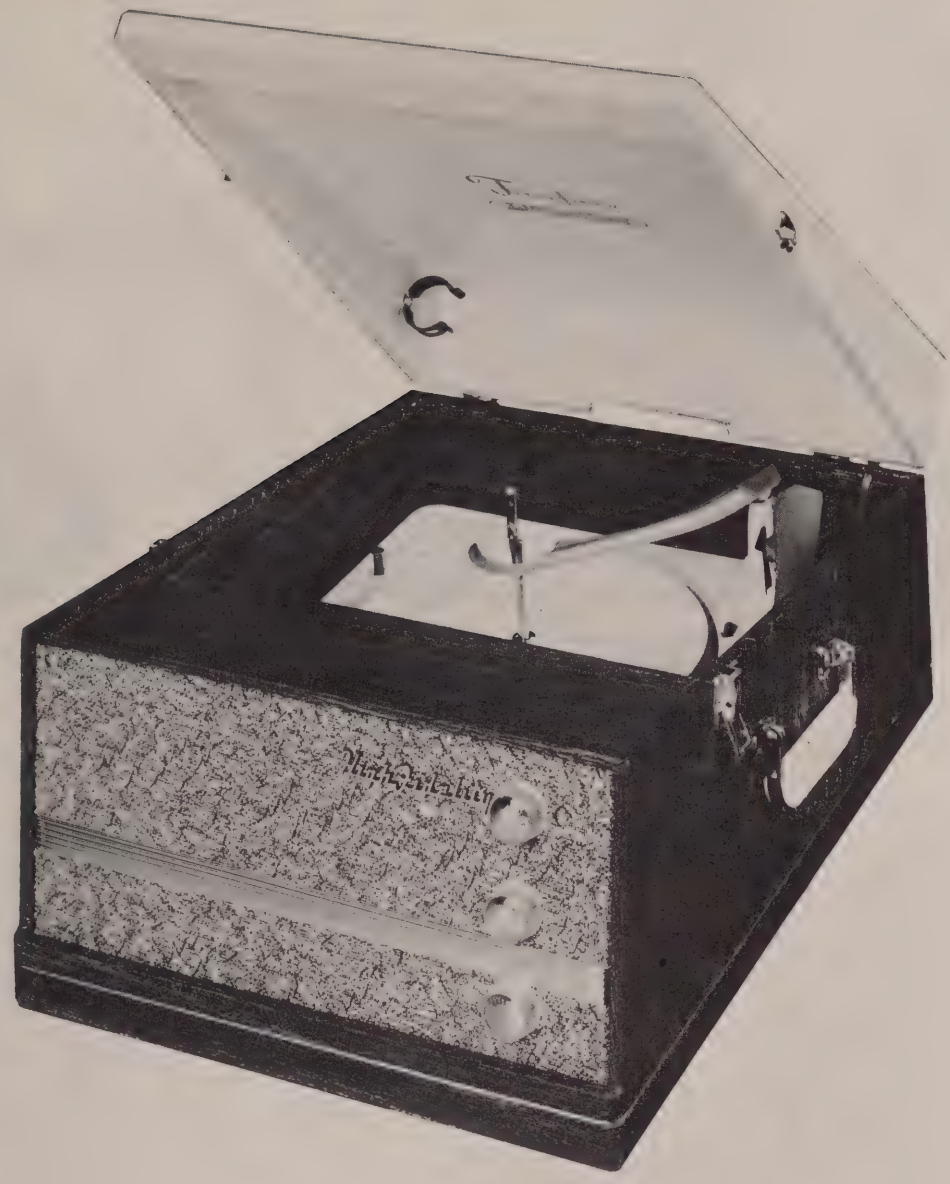
FANFARE
MODEL 432VM

FANFARE
MODEL 432VM



FANFARE
MODEL 432VM

TRADE NAME	Fanfare Model 432VM
MANUFACTURER	Fanon Electronic Sales Corp., 919 Park Place, Brooklyn 13, N.Y.
TYPE SET	AC Operated Phono Amplifier with 4 Speed Automatic Record Changer
TUBES	Four
POWER SUPPLY	110-120 Volts AC 60 Cycles RATING 26 Watts, .285 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR V-M 1200A - PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

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DATE 2-59 SET 431 FOLDER 8

SET 431 FOLDER 8

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inv.	12AX7	
V2	Output	35C5	
V3	Output	35C5	
V4	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	FANFARE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	150	①	PRS150V80	BBRT84215	TCT3117	TDLT-7	FMT-339	TVA-3455
B	40	150		4020					
C	20	150							
C2	10	100		PRS150V10	BBR10-150	TC52	TD-10-150	MT-1510	TVA-1406
C3	10	12		XPP-12010	BBR10-25	TT12X10	ML10-15	MQ-0510	TE-1128

① C1A may be 40mfd in some versions.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	FANFARE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	1000			BPD-001	DD-102	BYA6D1	B-210	5HK-D1	
C5	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C6	.22	200		P288N-22		CUB2P22	GEM-2022	2TM-P22	
C7	2000			BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C8	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C9	2000			BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C10	.056	400							

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FANFARE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	2meg	1/2	CM16669	B-76				Loudness
R2	2meg	1/2	CM16669	B-76				Treble
R3	25K	1/2	CM16667	B-29				Bass

RESISTORS

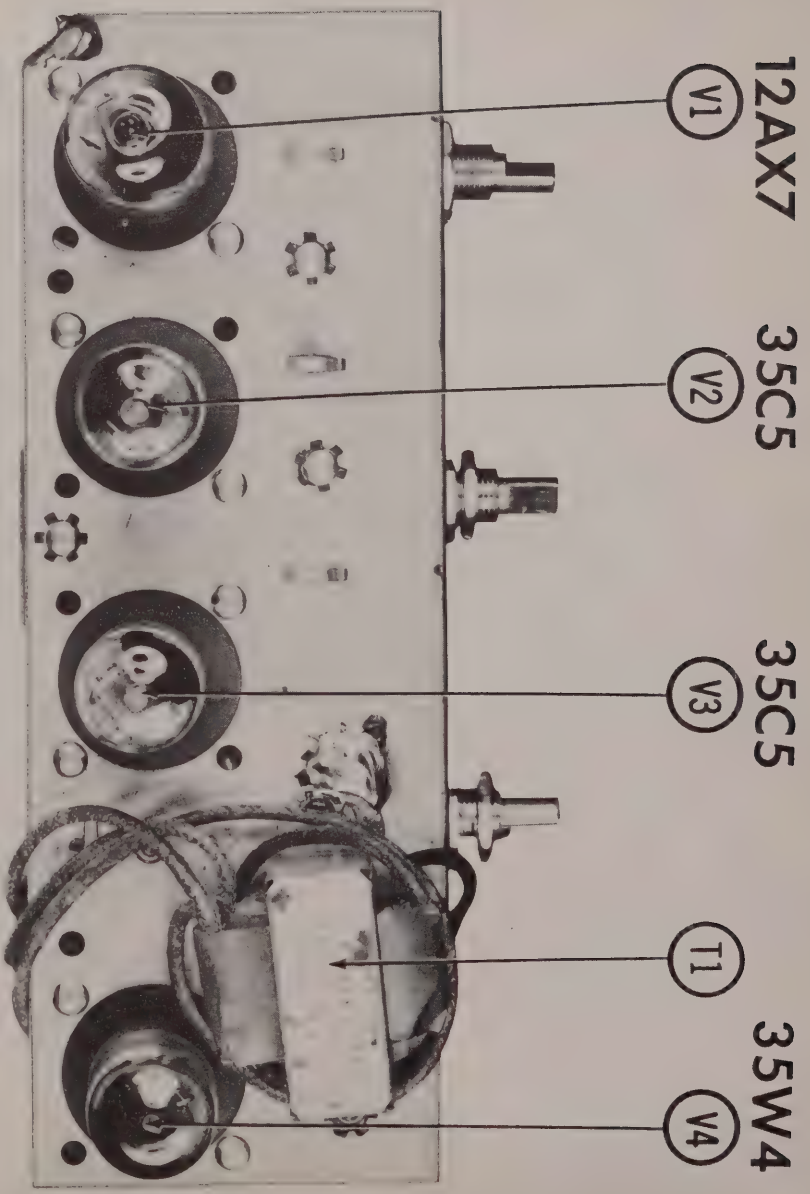
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		FANFARE PART No.	NOTES
	OHMS	WATT		
R4	270K			
R5	1000Ω 5%			Note 1
R6	150Ω			
R7	1000Ω 5%			Note 1
R8	27K			
R9	270K			
R10	4700Ω			
R11	470K			
R12	47K			
R13	47K			

ITEM No.	RATING		FANFARE PART No.	NOTES
	OHMS	WATT		
R14	150Ω			
R15	470K			
R16	47K			
R17	150Ω			
R18	27K			
R19	2200Ω			
R20	120Ω	1		
R21	10Ω			
R22	47K			

Note 1. Some versions may use 1200Ω in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	FANFARE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	4900Ω CT	1.8Ω	32-8316-9	Z1000 ①	A-2900①	AU-608①	A-3856①	24S60 ①	S-51X ①	① Drill new mtg. hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	FANFARE PART No.	QUAM PART No.	
SP1	8"	P M	3-4Ω		8A21	
SP2	3"	Electrostatic		LSH75		

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	FANFARE PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		81-T				

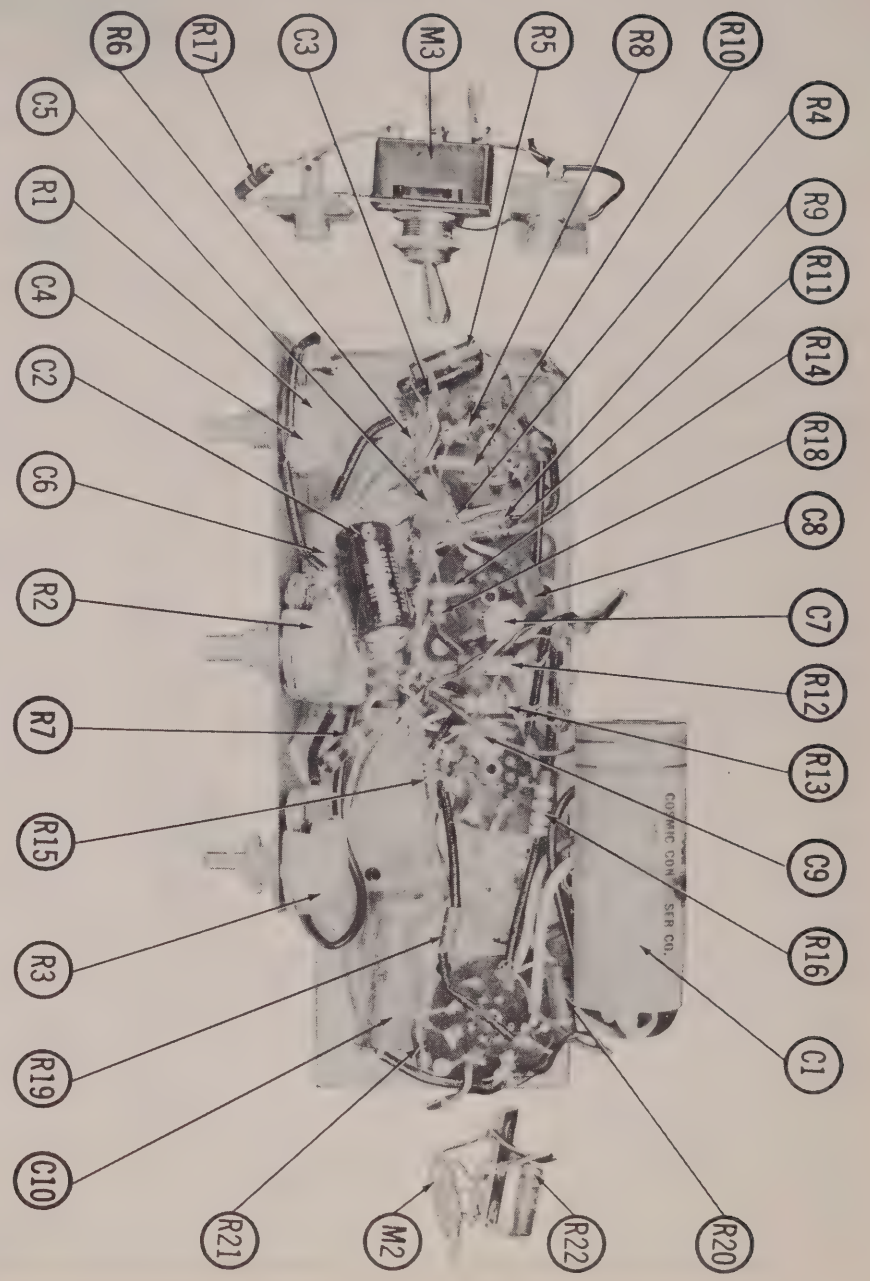
MISCELLANEOUS

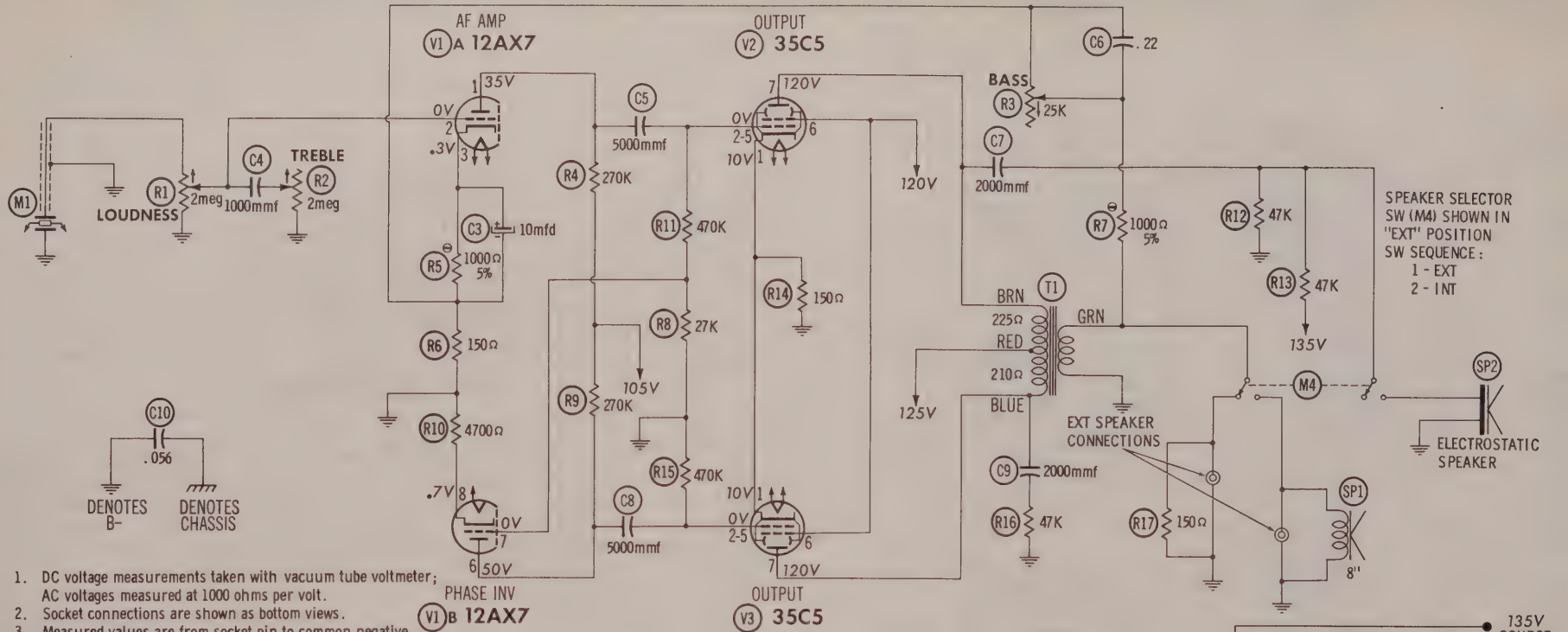
ITEM No.	PART NAME	FANFARE PART No.	NOTES
M2	Lamp		NE-2
M3	Switch		Power On-Off
M4	Switch		Internal-External Speaker, DPDT (Slide Type)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†300K	0Ω	1000Ω	0Ω	12Ω	†300K	27K	4700Ω	6Ω
V2	35C5	150Ω	500K	12Ω	47Ω	500K	†2300Ω	†345Ω		
V3	35C5	150Ω	470K	47Ω	82Ω	470K	†2300Ω	†330Ω		
V4	35W4	TP	TP	115Ω	82Ω	125Ω	95Ω	¶		

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

† MEASURED FROM PIN 7 OF V4.

TP TIE POINT.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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FANFARE
MODEL 432VM

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GENERAL ELECTRIC MODELS C-435A, T-125A, T-126A, T-127A, T-130A, T-131A, T-132A

GENERAL ELECTRIC MODELS C-435A, T-125A, T-126A, T-127A, T-130A, T-131A, T-132A

MODEL T-130A

TRADE NAME	General Electric Models C-435A, T-125A, T-126A, T-127A, T-130A, T-131A, T-132A
MANUFACTURER	General Electric Co., Products Service, Radio Receiver Dept., 869 Broad Street, Utica, N. Y.
TYPE SET	AC Operated AM Receiver (Model C-435A Has Clock)
TUBES	Five
POWER SUPPLY	110-120 Volts AC, 60 Cycles
RATING	24 Watts, .265 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540 - 1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools: A1 thru A4..... General Cement #8282, 8606, 8606L, 9091
Walsco #2526, 2541, 2543, 2544
A5, A6..... General Cement #5004, 5008, 5009
Walsco #2520

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1620KC	"	"	A5	"
3.		"	1400KC	Tune to 1400KC signal	"	A6	"

DISASSEMBLY INSTRUCTIONS

DISASSEMBLY
Models T-130A, T-131A, T-132A

1. Remove 3 screws from bottom of cabinet.
2. Pull the bottom of the cabinet front forward. (This disconnects the AC interlock and releases locking tube on the top of cabinet front.)
3. Separate the cabinet front from cabinet back.
4. Remove 2 control knobs.
5. Remove dial crystal by pulling out the top.
6. Pull dial pointer up out of its holder.
7. Remove 2 screws holding chassis to front. (One screw at each end.)
8. Remove 3 screws holding speaker baffle. Slide speaker baffle free.

DISASSEMBLY
Models T-125A, T-126A, T-127A

1. Insert a screwdriver between cabinet bottom and back.
2. Turn screwdriver to force tabs out of slots.
3. Slide down from top of cabinet to free top tabs on cabinet back. Separate cabinet back from front.
4. Remove screw on cabinet bottom.
5. Carefully slide chassis out of cabinet. (The tuning knob remains with the cabinet front.)
6. Remove volume control knob.
7. Remove nut holding volume control. Remove control.
8. Remove 4 clips holding speaker baffle and speaker. Remove speaker.

DISASSEMBLY
Model C-435A

1. Remove time set knob (Hold shaft and turn knob CCW).
2. Force cabinet bottom away from back to free tabs on bottom of cabinet back. Remove back.
3. Remove screw from cabinet bottom.
4. Carefully slide chassis out of cabinet. (The tuning knob remains with the cabinet front.)
5. Remove volume control knob.
6. Remove nut holding volume control. Remove control.
7. Remove 4 clips holding speaker. Remove speaker.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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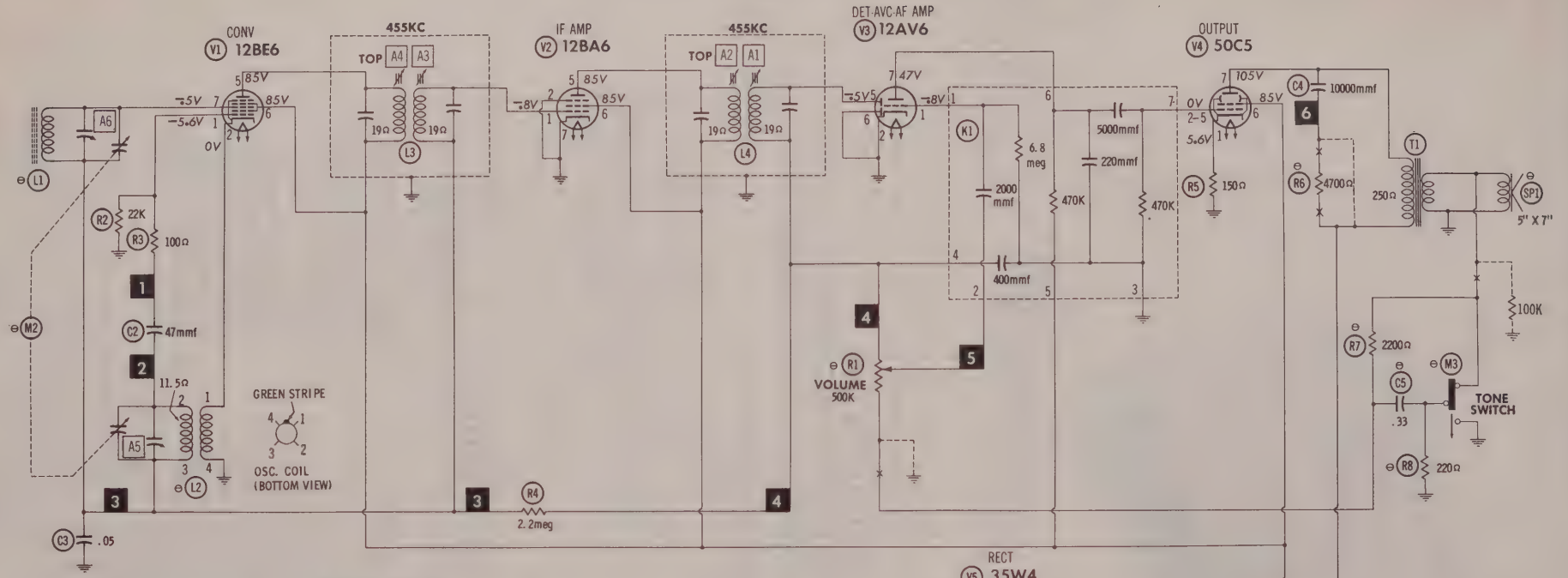
SET 431 FOLDER 9



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.8Ω	36Ω	24Ω	†1500Ω	†1500Ω	2.7meg
V2	12BA6	2.7meg	0Ω	24Ω	12Ω	†1500Ω	†1500Ω	0Ω
V3	12AV6	6.8meg	0Ω	12Ω	0Ω	500K	0Ω	†470K
V4	50C5	150Ω	470K	36Ω	86Ω	470K	†1500Ω	†250Ω
V5	35W4	TP	TP	86Ω	115Ω	100Ω	10.5Ω	¶

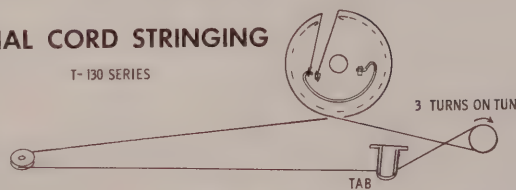
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

† MEASURED FROM PIN 7 OF V5.

TP TIE POINT.

DIAL CORD STRINGING

T-130 SERIES



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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GENERAL ELECTRIC MODELS C-435A, T-125A, T-126A, T-127A, T-130A, T-131A, T-132A

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. - AVC - AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	G. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150	RCE-207 ①	PRS150V5030	BBRD5315	WD210	TDLD-8	CADP-512	TVA-2450
B	30	150							

① Model C-435A uses 75-30mfd (Part #RCE-215).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	G. E. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	47			BPD-000047	DD-470	L10Q47	CNO-447	5GA-Q47	
C3	.05	200		P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C4	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C5	.33	100		P288N-33		PM4P33	GEM-2033		①
C6	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	

① Not used in Models T-125A, T-126A, T-127A, C-435A.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	G. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	RS-1450 ①				PP55A	Volume Note 1
B	Switch						Not Req.	Push-Pull

① Part #RS-1435 used in Models T-125A, T-126A, T-127A.
Part #RS-1417 (No Switch) used in Model C-435A.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		G. E. PART No.	NOTES
	OHMS	WATT		
R2	22K			
R3	100Ω			
R4	2.2meg			
R5	150Ω			

ITEM No.	RATING		G. E. PART No.	NOTES
	OHMS	WATT		
R6	4700Ω			Note 1
R7	2200Ω			Note 1
R8	220Ω			Note 1
R9	1500Ω	2		

Note 1. Not used in Models T-125A, T-126A, T-127A, C-435A.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		G. E. PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loopstick	RS-1461 ①					
L2	Osc. Coil	RS-1430 ②					
L3	Input IF	RS-1415					
L4	Output IF	RS-1415					

① Part #RS-1457 used in Models T-125A, T-126A, T-127A.
Part #RS-1409 used in Model C-435A.

② Part #RS-1437 used in Models C-435A, T-125A, T-126A, T-127A.

PRINTED BOARD

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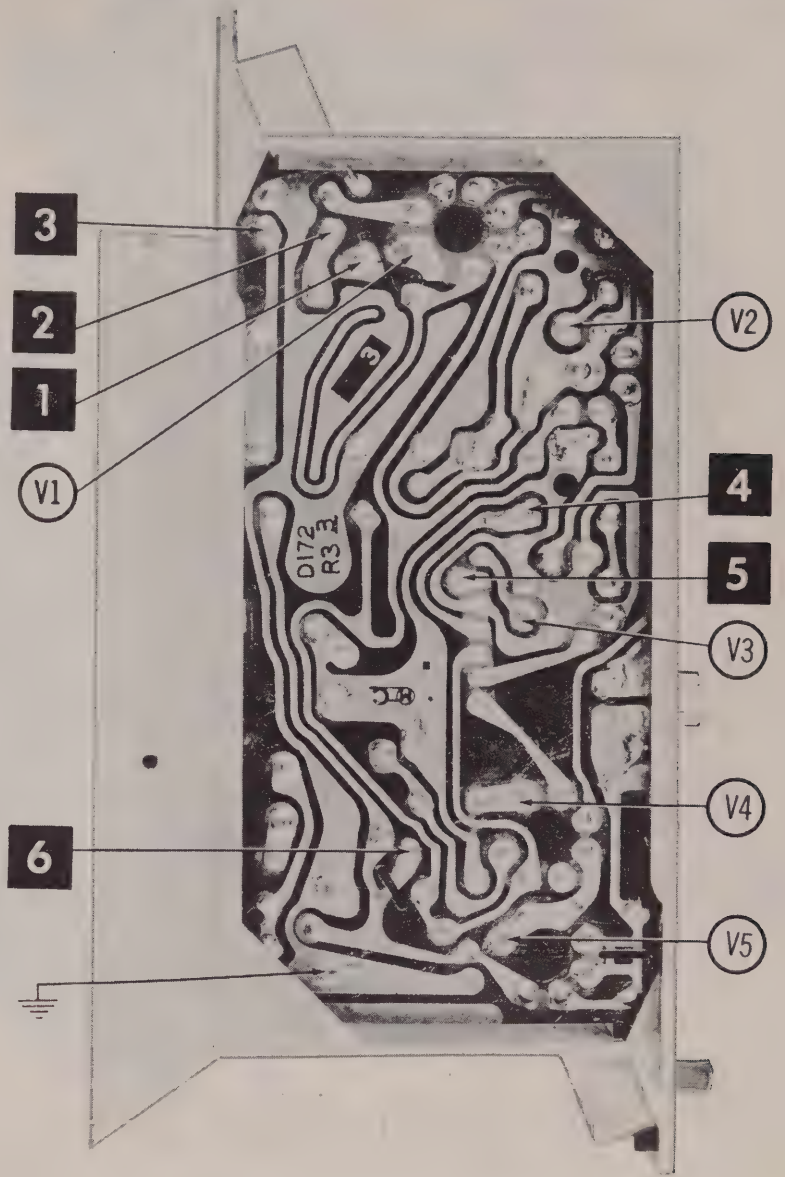
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	G. E. PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2400Ω	3-4Ω	RS-1416 (113A6482)	Z1101	A-3025	AU-605	A-3332	24S53	S-12X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	G. E. PART No.	QUAM PART No.	
SP1	5" x 7"	PM	3-4Ω	RB-1071 ① (671C230)	57A15	① Used in Models T-130A, T-131A, T-132A. ② Used in Models T-125A, T-126A, T-127A. C-435A
	4"	PM	3-4Ω	RB-1057 ② (867B1764)	4A1	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	G. E. PART No.	REPLACEMENT DATA
K1	Audio Circuit	220mmf, 400mmf, 2000mmf, 5000mmf, 6.8meg, 470K, 470K	REK-011	Centralab PC-315 Sprague DT-9

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M1	Lamp	RS-1323	#12 (Models T-130A, T-131A, T-132A only)
M2	Tuning Cap.	RS-1449	2 Gang, Models T-130A, T-131A, T-132A
	Tuning Cap.	RS-1436	2 Gang, Models T-125A, T-126A, T-127A
	Tuning Cap.	RS-1413	2 Gang, Model C-435A
M3	Switch	RS-1128	Tone, SPDT, Slide Type (Models T-130A, T-131A, T-132A only)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

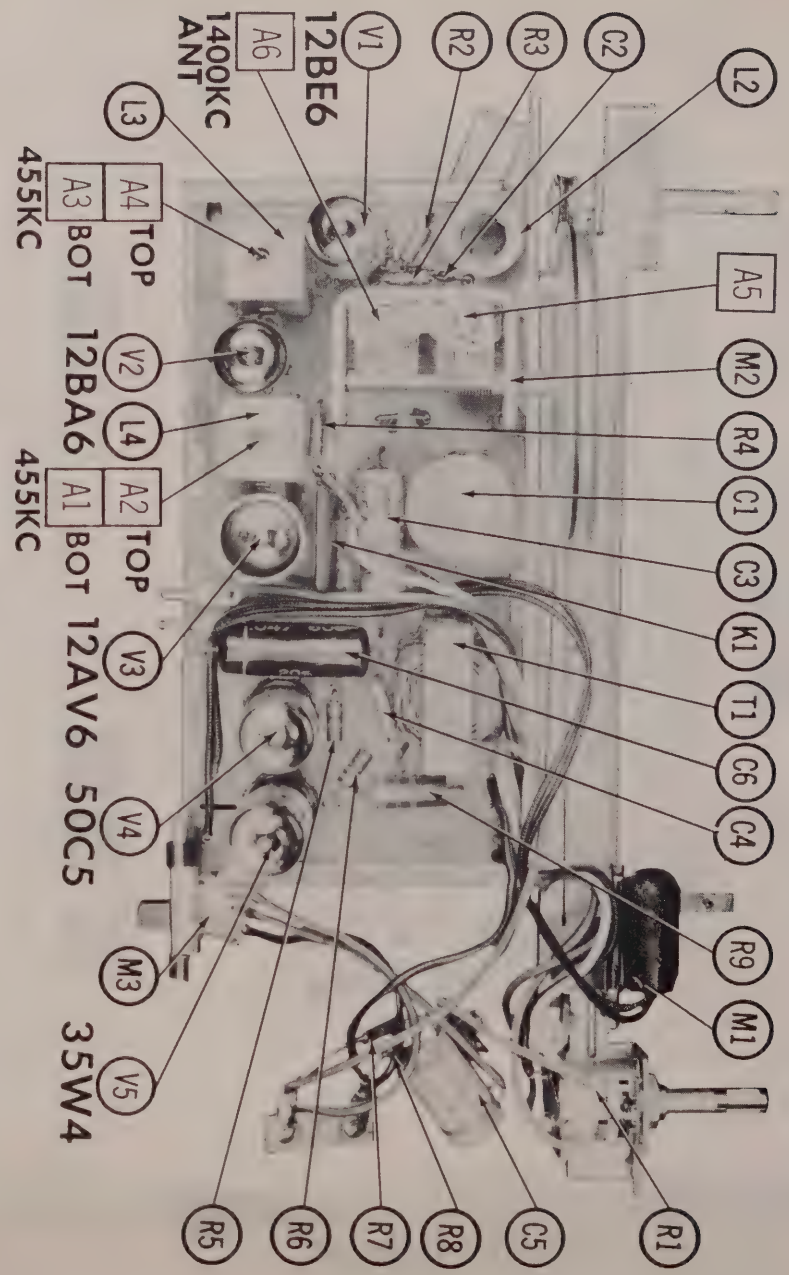
NAME	PART NO.	DESCRIPTION
Knob	RS-1263	Tuning, Models T-125A, T-126A
Knob	RDK-425	Tuning, Volume-Off-On, Models T-130A, T-131A, T-132A
Knob	RS-1466	Tuning, Model T-127A
Knob	RS-1464	Tuning, Model C-435A
Knob	RS-1467	Volume-Off-On, Model T-127A
Knob	RDK-425	Volume, Model C-435A
Knob	RS-1264	Volume, Models T-125A, T-126A
Knob	RS-1005	Clock, Model C-435A
Cabinet	RB-1067	Front, Models T-130A, T-131A, T-132A
Cabinet	RB-1069	Back, Model T-130A (Pink)
Cabinet	RB-1070	Back, Model T-131A (Blue)
Cabinet	RB-1073	Back, Model T-132A (Grey)
Cabinet	RB-1065	Model T-125A (Pink)
Cabinet	RB-1066	Model T-126A (Beige)
Cabinet	RB-1072	Model T-127A (White)
Cabinet	RB-1063	Model C-435A (White)
Dial Crystal	RS-1444	Models T-130A, T-131A, T-132A
Clock Crystal	RS-1401	Model C-435A
Clock Face	RS-1402	Model C-435A
Second Hand	RS-1405	Model C-435A
Alarm Hand	RS-1406	Model C-435A
Minute Hand	RS-1407	Model C-435A
Hour Hand	RS-1408	Model C-435A

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

CHASSIS—TOP VIEW



PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

GROMMES MODEL 260A

GROMMES
MODEL 260A

GROMMES
MODEL 260A

TRADE NAME	Grommes Model 260A
MANUFACTURER	Precision Electronics, Inc., 9101 King Ave., Franklin Park, Illinois
TYPE SET	AC Operated Audio Amplifier
TUBES	Eight
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING 165 Watts, 1.55 Amp. @117 Volts AC

BIAS ADJUSTMENT (R3 AND R4)

If either output tube (V3 or V4) is replaced the "Output Balance" (R3) and the Bias (R4) controls should be adjusted. The "Output Balance" control (R3) should be adjusted so that the plate currents of V3 and V4 are equal. A 0-100DC milliammeter (with standard phono plug) may be alternately inserted into the two "Plate Current" jacks to check this current. The "Bias" control (R4) should then be adjusted for a reading of 75MA on the meter when inserted into each of the jacks.

DC BALANCE ADJUSTMENT (R2)

This adjustment is not necessary unless the associated circuit has been tampered with or repaired. Alternately connect DC probe of VTVM to pins 1 and 6 of V2, common to chassis and adjust "DC Balance" control (R2) for equal plate voltages at pins 1 and 6.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

H805

SET 431 FOLDER 10

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AU7A	
V2	AF Amp. -Phase Inv.	12BH7A	
V3	Output	6550/KT88	
V4	Output	6550/KT88	

ITEM No.	USE	TYPE	NOTES
V5	Voltage Regulator	6L6GB	
V6	Bias Regulator	0B2	
V7	Rectifier	5U4GB	
V8	Rectifier	5U4GB	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	GROMMES PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	500		AFH3-52	C0390	FP396.1	TMT-47	Q-075	R2737 *
B	■20	500			BR1250		TDLD-[illegible]		
C	▲20	500							
C2A	▲40	500		AFH3-52	C0390	FP396.1	TMT-47	Q-075	R2737 *
B	■20	500			BR1250		TDLD-26		
C	▲20	500							
C3	10	250		PRS350V10	BR1045	TC52	TD-10-250	MT-4510	TVA-1504
C4	50	50		PRS50V50	BR505	TC39	TD-50-50	MT-0550	TVA-1308

* Not normally in distributors stock. Available thru distributor on order to manufacturer

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	GROMMES PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	.47	200		P288N-47		CUB2P47	GEM-2047	2TM-P47	10% ①
C6	470				MD-471		JL-347		
C7	.47	200		P288N-47		CUB2P47	GEM-2047	2TM-P47	
C8	.1	600		P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C9	.1	600		P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C10	20			SI20	D6-200	CTA6Q2C		5GA-Q2	

① Some versions may use 250mmt in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	GROMMES PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½		B-60	A47-500K-Z	Q13-133	U48	Gain
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R2A	5000Ω	½	CLU-5K	AB-10	A47-5000-S	Q11-114	U14	DC Balance
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R3A	5000Ω	½	CLU-5K	AB-10	A47-5000-S	Q11-114	U14	Output Balance
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R4A	50K	½	CLU-50K	AB-31	A47-50K-S	Q11-123	U35	Bias
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R5A	1Ω	4 (WW)	1252063				UE114W	Internal Impedance
B	1Ω	4 (WW)					Not Req.	Internal Impedance

RESISTORS

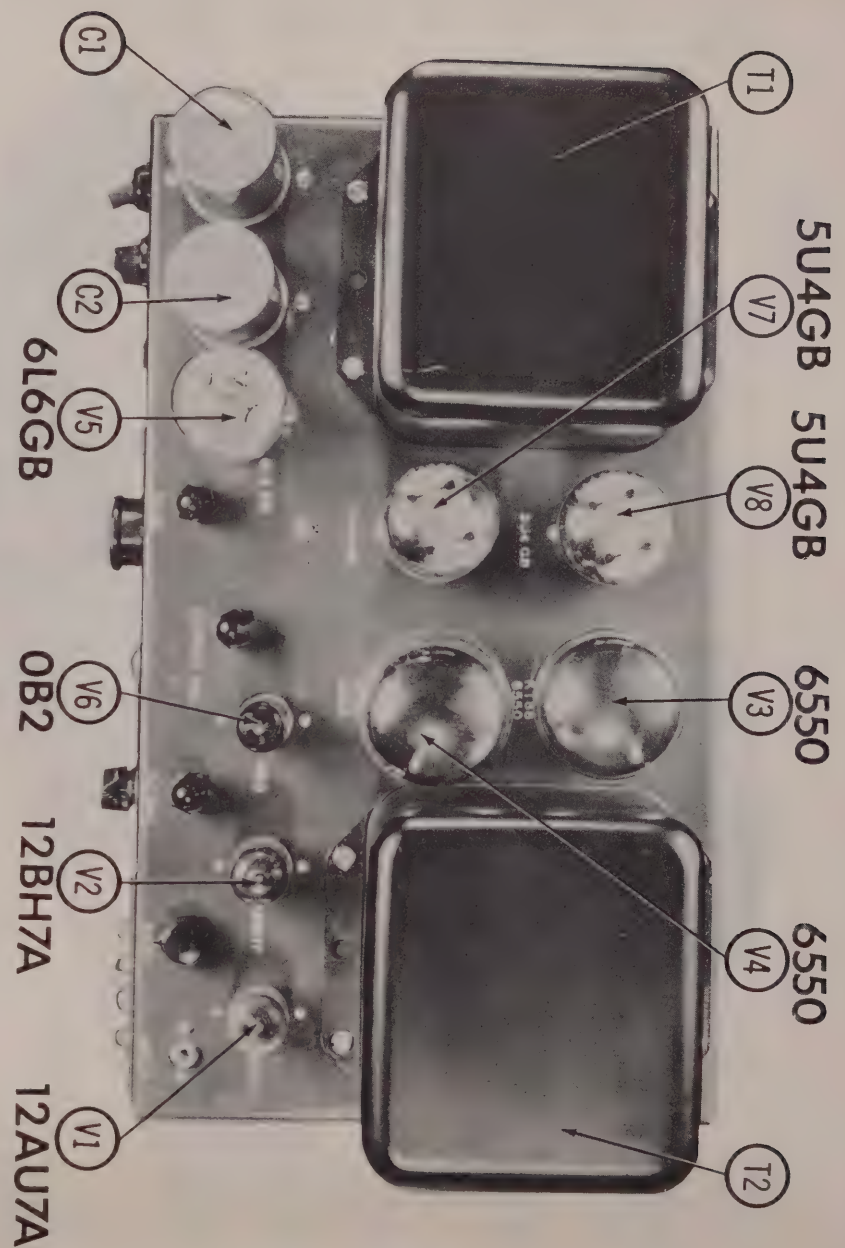
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		GROMMES PART No.	NOTES
	OHMS	WATT		
R6	100K			
R7	1000Ω			
R8	1meg			
R9	100K	1		
R10	22K			
R11	10K			
R12	47K	1		
R13	22K	2		
R14	1meg			
R15	56K	1		
R16	1000Ω			
R17	100K			
R18	47K	1		

ITEM No.	RATING		GROMMES PART No.	NOTES
	OHMS	WATT		
R19	1000Ω			
R20	100K			
R21	47K	1		
R22	27K			
R23	2200Ω			
R24	100K	2		
R25	220K	2		
R26	10K 5%	1		
R27	4700Ω			
R28	22K			
R29	1000Ω	1		
R30	47Ω			
R31	47K	1		Note 1

Note 1. Not used in some versions.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		GROMMES PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Cathode Choke (IRC Part # CLA)		19-1000	BC-561	4602	VP-9	1 Microhenry Note 1.

Note 1. Not used in some versions.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	GROMMES PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L2	.150A	40Ω	1.5HY	216BA	C5040	C-2991	F-803 ①	C-2325	26C93	C-17X

① Drill new mounting hole.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	GROMMES PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @1.55A	740 VCT @.150A Tap @ 105V @.02A	5V @5.4A	TP-60A						
	SEC. 3 6.3 VCT @4.9A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	GROMMES PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4100Ω CT Screen Taps @ 2000Ω CT	16Ω Tap @ 8Ω	T0-60A	H-4101 ①	A-3100 ①		A-8053 ①	22S63 ①	S-152A ①	① Drill new mounting holes

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	GROMMES PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.018A	179728	1234AH	RS050 SD-94 ①	50 K200 ①	① Silicon Type

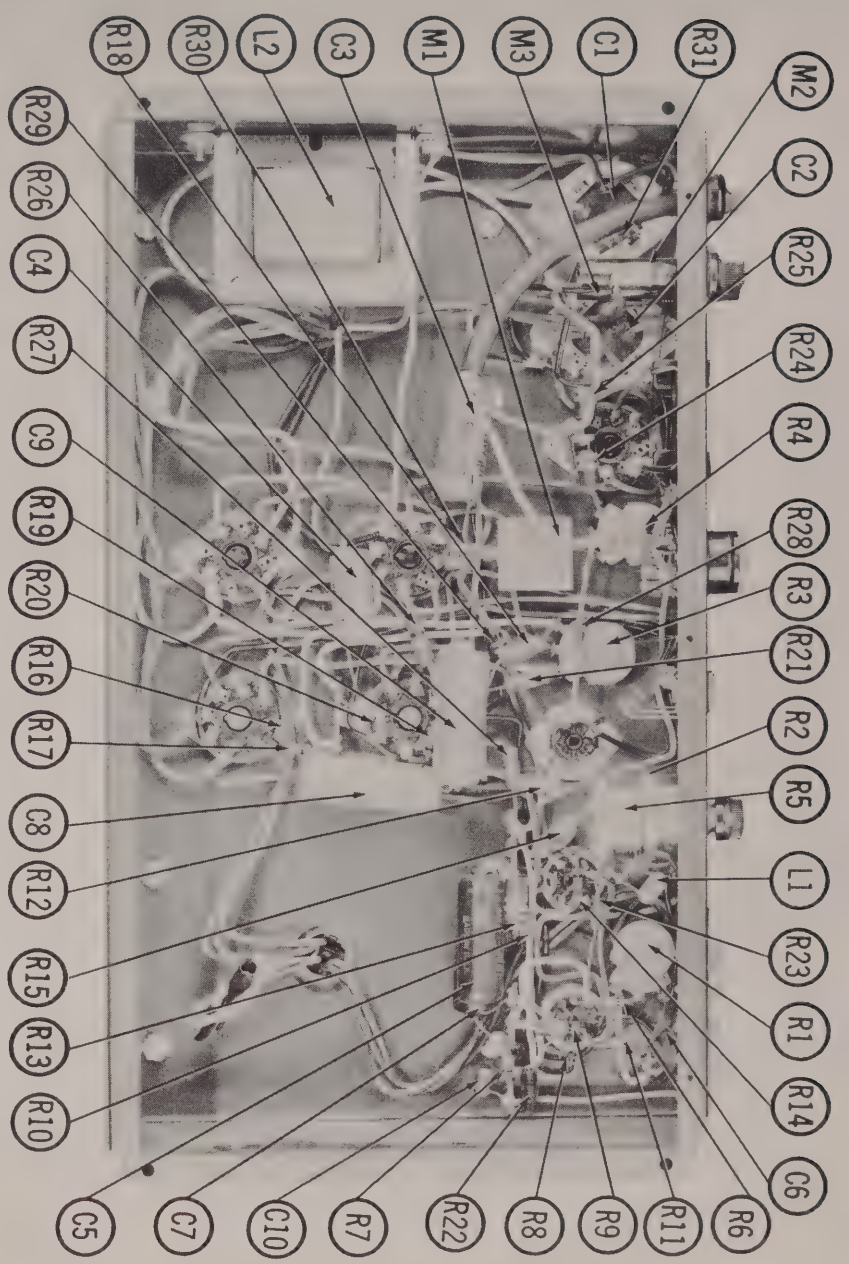
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			GROMMES PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	AGC	5A 250V			312005. (5A 250V)	342001	MTH5	HKP
M3	3AG	1A 250V			312001. (1A 250V)	342001	AGC1	HKP

WIRING DATA

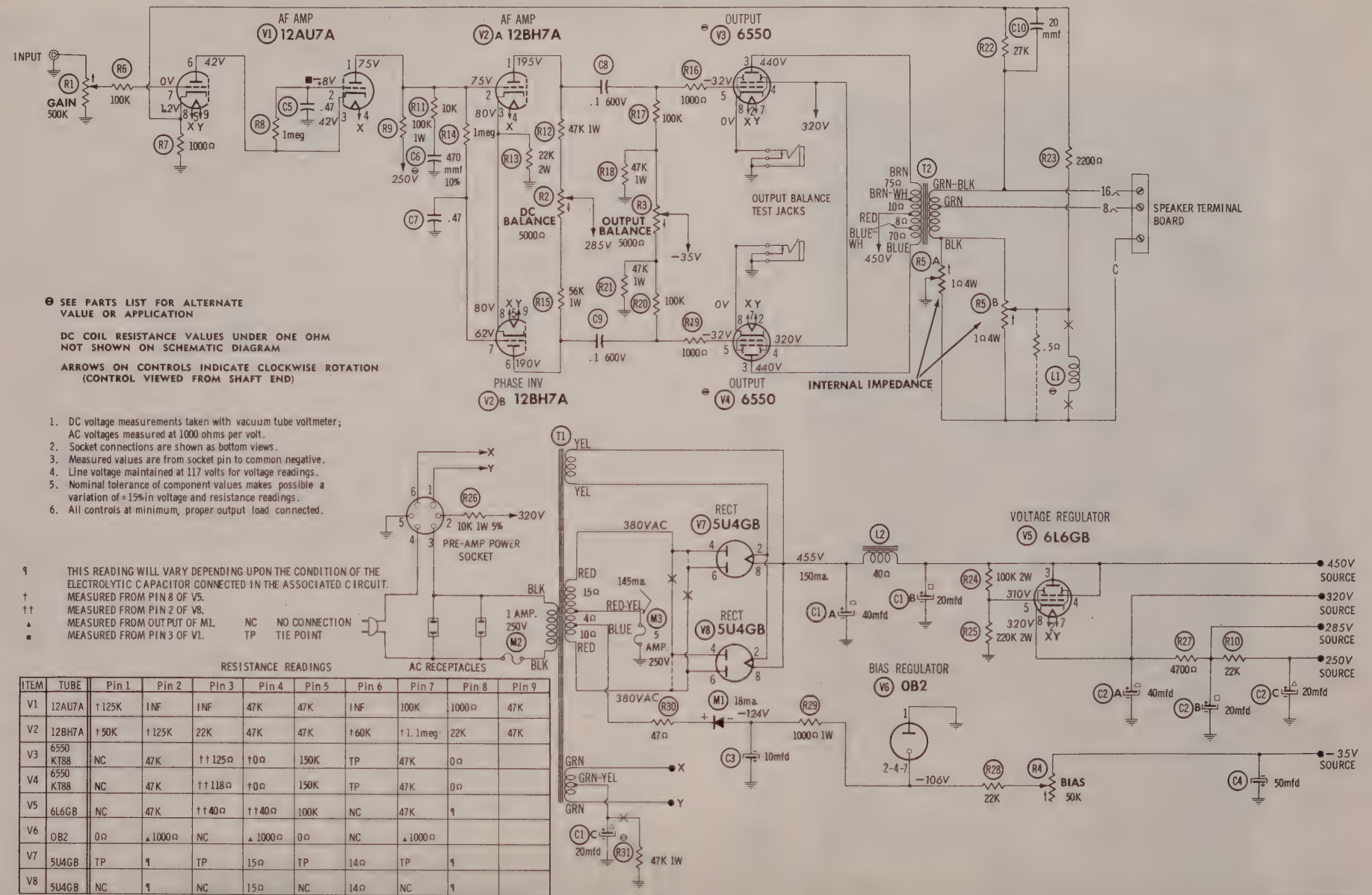
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW



GROMMES
MODEL 260A

FOLDER 10



Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
† MEASURED FROM PIN 8 OF V5.
†† MEASURED FROM PIN 2 OF V8.
▲ MEASURED FROM OUTPUT OF M1. NC NO CONNECTION
● MEASURED FROM PIN 3 OF V1. TP TIE POINT

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU7A	†125K	INF	INF	47K	47K	INF	100K	1000Ω	47K
V2	12BH7A	†50K	†125K	22K	47K	47K	†60K	†1.1meg	22K	47K
V3	6550 KT88	NC	47K	††125Ω	†0Ω	150K	TP	47K	0Ω	
V4	6550 KT88	NC	47K	††118Ω	†0Ω	150K	TP	47K	0Ω	
V5	6L6GB	NC	47K	††40Ω	††40Ω	100K	NC	47K	¶	
V6	OB2	0Ω	▲1000Ω	NC	▲1000Ω	0Ω	NC	▲1000Ω		
V7	5U4GB	TP	¶	TP	15Ω	TP	14Ω	TP	¶	
V8	5U4GB	NC	¶	NC	15Ω	NC	14Ω	NC	¶	

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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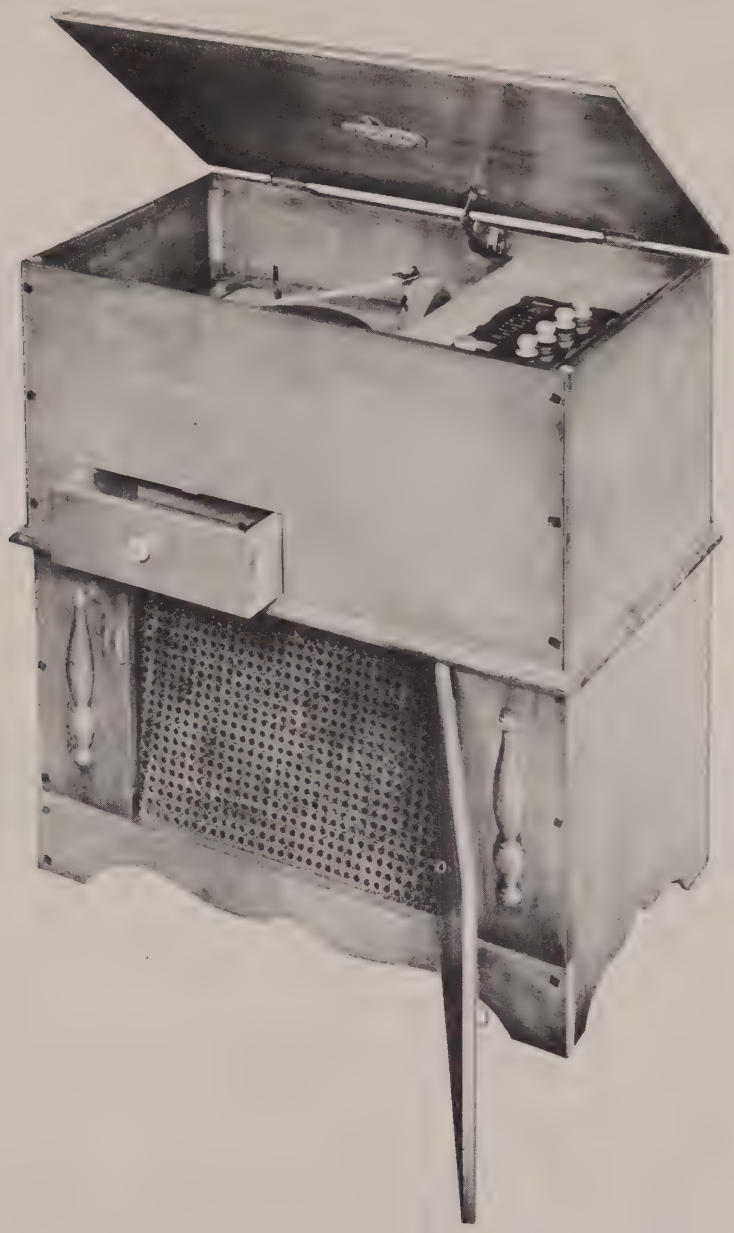
GROMMES MODEL 260A

PHOTOFACT* Folder

with CIRCUITRACE*

GUILD
MODEL 818

GUILD
MODEL 818



GUILD
MODEL 818

TRADE NAME	Guild Model 818 "Bonnet Box"		
MANUFACTURER	Guild Radio & Television Co., 460 N. Eucalyptus Ave., Inglewood, California		
TYPE SET	AC Operated FM-AM Tuner and Amplifier With 4 Speed Automatic Record Changer		
TUBES	Eighteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	170 Watts, 1.6 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	540 - 1620KC	FREQ. MOD.	88 - 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR V-M 959 - PHOTOFACT SET 396 FOLDER 13

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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H832

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amplifier	6BQ7A
V2	FM Mixer	6AB4
V3	FM Osc. - FM AFC	12AT7/ECC81
V4	AM Converter	6BE6
V5	1st FM-AM IF Amp.	6BA6
V6	2nd FM IF Amp. - AM Det. - AVC	6AU6
V7	FM Limiter	6AU6
V8	Ratio Detector	6AL5
V9	Tuning Indicator	6DA5/EM81 ①
V10	Phono Amplifier	6267/EF86
V11	AF Amp. - Squelch	12AX7/ECC83
V12	AF Amplifier	6267/EF86
V13	AF Amp. - Phase Inv.	12AX7/ECC83
V14	Output	6BQ5/EL84
V15	Output	6BQ5/EL84
V16	Output	6BQ5/EL84
V17	Output	6BQ5/EL84
V18	Rectifier	5U4/GZ34

① Some versions may use type EM80/6BR5 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA GUILD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▰40	450		AFH4-70-10	B0450	FP385	TMT-140	D-235	TVLS-3744.4*
B	■40	450			BR100-25	TC77	TD-30-450	MTH-2510	
C	▲100	25							
C2A	▰40	450		AFH4-70-10	B0450	FP385	TMT-140	D-235	TVLS-3744.4*
B	■40	450			BR100-25	TC77	TD-30-450	MTH-2510	
C	▲100	25							
C3A	■40	450		AFH2-52	B0400	FP231.3	TMD-49	S-270	R1636 *
B	▲20	450			BR2045	TC77	TD-30-450	MT-4520	
C4	4	50		PRS150V4	BBR4-50	TT50X5	TD-4-50	MT-0504	TVA-1402
C5	4	50NP		NP-PRS50V4	BBR8-150	TC504	TD-8-150	MT-1508	
					BBR8-150 †		TD-8-150 †	MT-1508 †	

* Not normally in distributors stock. Available thru distributor on order to manufacturer.
† Connect negative leads together.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA GUILD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C6	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C7	1000			BPD-001	DD-102	BYA6D1	B-210	5HK-D1	
C8	220			BPD-00022	DD-221	L10T22	B-322	5GA-T22	
C9	20000			BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C10	1000			BPD-001	DD-102	BYA6D1	B-210	5HK-D1	
C11	2000			BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C12									
C13	20000			BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C14	2000			BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C15	47			NPO-DI 47	DD-470	L10Q47	CNO-447	5TCC-Q47	10%
C16	7.5								10%
C17	20								N330 10% ①
C18	70			1469-00007		22R5Q7		MS-47	
C19									
C20	3.5								NPO 10%
C21	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C22	4.7			NPO-SI 4.7	TCZ-4R7	CTA6V47C	ZT-5547	5TCCB-V47	10%
C23	1000			EF-001	MFT-1000			503C-D1	
C24	100			BPD-0001	DD-101	L10T1	CNO-310	5GA-T1	
C25	20000			BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C26	1000			EF-001	MFT-1000			503C-D1	
C27	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C28	470			BPD-00047	DD-471	L10T47	B-347	5GA-T47	
C29	.05	200		P288N-05	DF-503	CUB2S5	ACE615	2TM-S5	
C30	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C31	47			BPD-000047	DD-470	L10Q47	CNO-447	5GA-Q47	
C32	10								N3300 10%
C33	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C34	2000			BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C35	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C36	47			NPO-DI 47	DD-470	L10Q47	CNO-447	5TCC-Q47	10%
C37	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C38	2000			BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C39	300			1469-0003	MD-301	5R5T3	MCB241	MS-33	10%

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA GUILD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C40	2000			BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C41	2000			BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C42	300			1469-0003	MD-301	5R5T3	MCB241	MS-33	10%
C43	300			1469-0003	MD-301	5R5T3	MCB241	MS-33	10%
C44	2000			BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C45	470			BPD-00047	DD-271	L10T47	B-347	5GA-T47	
C46	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C47	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C48	5000			BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C49	1000			BPD-001	DD-102	BYA6D1	B-210	5HK-D1	
C50	2000			BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C51	20000			BPD-02	DD-202	BYB6S2	B-120	5HK-S2	
C52	.25	200		P288N-25		CUB2P25	GEM-2025	2TM-P25	
C53	.01	400		P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C54	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C55	10000			BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C56	.05	200		P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C57	2000			BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C58	.05	400		P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C59	100			BPD-0001	DD-101	L10T1	CNO-310	5GA-T1	
C60	.05	400		P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	②
C61	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C62	.05	400		P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	②
C63	.05	400		P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C64	10000	1500		DAC-27	DD16-103	HVE16S1	2HV-110	BL-S10	

① Some versions may use 15mmf N750 in this application. ② Some versions may use .1mfd in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA GUILD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	VRS-1MT-GB	BT-73	A47F4-1meg	Q13-137X	UT-440	Loudness, Tap ② 200K
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-26	
R2A	500K	½	VR-500KT-GB	BT-65	A47F-1meg	Q19-133X	UT-431	Treble, Tap ② 250K
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg	½	VR-1M-GB	B-69	A47-1meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	3000Ω	2(WW)		WN-302 †	39-3000	WPS3000 †	FL-2.5K	Noise Adjust
B	Shaft			Not Req.	Not Req.	SK5	Not Req.	
R5A	100Ω	2(WW)	CM19654	WN-101	A43-100	W11-084	R100L	Hum Balance
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	

* Use KR with CRL "Red Label" controls and KB with "Blue Label" controls.
† Bushing Type Control can be used in this application.

RESISTORS

All wattages 1/2 watt, or less. unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	GUILD PART No.	NOTES
R6	39K			
R7	150Ω			
R8	4700Ω	1		
R9	220Ω			
R10	22K			
R11	1500Ω			
R12	470K			
R13	220Ω			
R14	47K			
R15	560Ω			
R16	3.3meg			
R17	33K			
R18	6800Ω			
R19	10K	10		
R20	22K			
R21	1000Ω			
R22	100Ω			
R23	1meg			
R24	1meg			
R25	33K			
R26	1000Ω			
R27	100Ω			
R28	100K			
R29	22K			
R30	56K			
R31	47Ω			
R32	33K			
R33	1meg			
R34	1500Ω 2%			
R35	8200Ω			Note 1
R36	1000Ω 2%			
R37	8200Ω			Note 1
R38	1meg			
R39	270K			
R40	1.5meg			
R41	1meg			
R42	1.5meg			
R43	470K			
R44	180K			
R45	470K			
R46	1200Ω			
R47	470K			

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	GUILD PART No.	NOTES
R48	220K			
R49	15K			
R50	47K			
R51	47K			
R52	56K	1		
R53	470Ω			Note 4
R54	1000Ω			Note 4
R55	270K			
R56	100K			
R57	1500Ω			
R58	22K			
R59	390K			
R60	68K 5%			
R61	22K	2		
R62	1meg			
R63	180K			
R64	390K			
R65	3300Ω			
R66	330Ω			
R67	10K	1		
R68	100K			

ITEM No.	RATING OHMS	RATING WATT	GUILD PART No.	NOTES
R69	1meg			
R70	100K			Note 2
R71	68K			
R72	100K			Note 2
R73	1000Ω			
R74	470K			Note 3
R75	100Ω			
R76	130Ω	5		
R77	1000Ω			
R78	470K			Note 3
R79	100Ω			
R80	130Ω	5		
R81	75Ω	10		
R82	6800Ω	2		
R83	47K			
R84	47K	1		
R85	33K			
R86	3000Ω	20		
R87	22Ω	4		
R88	22Ω	4		
R89	47K			

Note 1. R35 and R37 are matched to 2%.
Note 2. R70 and R72 are matched to 2%.
Note 3. R74 and R78 are matched to 2%. Some versions may use 820K
Note 4. When R53 is not used, R54 is 2200Ω.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA GUILD PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil						
L2	RF Choke		19-1002	BC-563	4606		2.2 Microhenries
L3	RF Choke						
L4	FM RF Coil						
L5	RF Choke		19-1003	BC-564	4608		4 Microhenries
L6	Cathode Choke		19-1002	BC-563	4606		2.2 Microhenries
L7	Fil. Choke		19-1004	BC-565	4610		6.5 Microhenries
L8	FM Osc. Coil						
L9	Loopstick						
L10	AM Osc. Coil						
L11	Fil. Choke						Wound on 820Ω
L12	RF Choke						
L13	1st FM IF Trans.		16-3490		1463-PC		
L14	1st AM IF Trans.		16-6780		13-PC1	RF-4	
L15	2nd FM IF Trans.		16-3490		1463-PC		
L16	2nd AM IF Trans.		16-6780		13-PC2	RF-4	
L17	3rd FM IF Trans.		16-3490		1463-PC		
L18	Fil. Choke						
L19	Ratio Detector		17-3492		1465-PC		

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	GUILD PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ L 6A	640VCT @ .240A	5V @ 3A	TP3323-GB		P-3055			26R93	R-49BC
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 3.7A	6.3V @ 2.5A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	GUILD PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	4300Ω CT	3-4Ω Tap @ 1-2Ω	TRO-4K2-GB							
	Screen Taps @ 1000Ω CT									

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA GUILD PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	10"	PM	6-8Ω	92100G	10A6PA	
SP2	5"	PM	3-4Ω	92511G	5A15TZ3.8	
SP3	5"	PM	3-4Ω	92521G	5A15R	
SP4	5"	PM	3-4Ω	92521G	5A15R	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	GUILD PART No.	REPLACEMENT DATA
K1	Det. RF Filter	100mmf, 100mmf, 47K		Aerovox PA-97 Centralab PC-50 Cornell-Dubilier 111TM1 Sprague D-1
K2	Tone Compensation	100mmf, 4700mmf, 4700mmf, 1000Ω, 100K, 100K, 470K		Centralab PC-190

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA GUILD PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M1		89-TB				

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA GUILD PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2		† S-61 or †♦ S-61SD or ♦ S-61D	† W-77TPS or †♦ W-77DS or ♦ W-77TPD	† Jewel ♦ Diamond

CRYSTAL DIODES

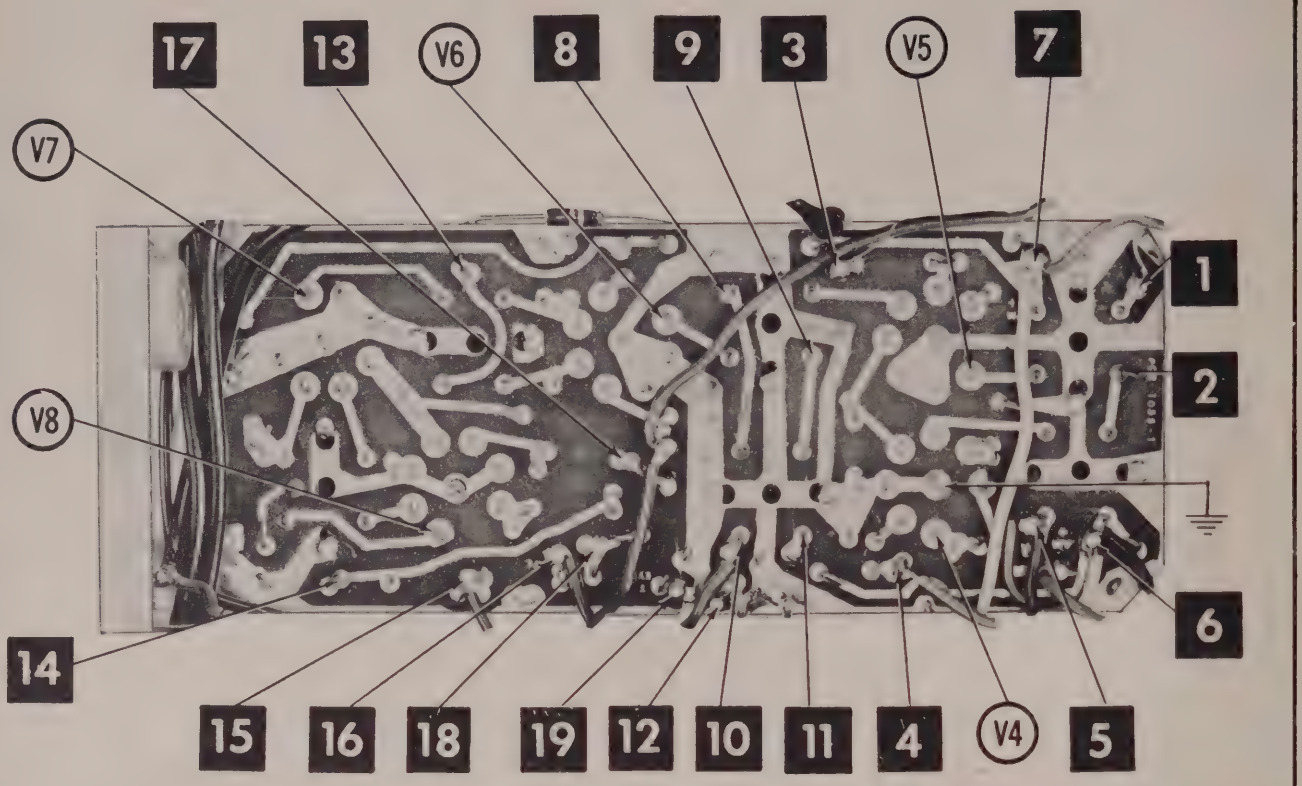
ITEM No.	ORIG. TYPE	REPLACEMENT DATA GUILD PART No.	REPLACEMENT DATA CBS PART No.	REPLACEMENT DATA SYLVANIA PART No.	NOTES
M3	1N64		1N64	1N295	Noise Limiter (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	GUILD PART No.	NOTES
M4	Lamp		#47
M5	Tuning Cap.		5 Gang (AM Sections: Ant. 15-411mmf, Osc. 7-135mmf)
M6	Switch		Function (5 Position, Rotary, Wafer Type)
M7	Switch		Noise Silencer (SPDT, Slide Type)
M8	Switch		Contour (DPDT, Slide Type)
M9	Switch		Rumble Filter (DPDT, Slide Type)
M10	Switch		Scratch Filter (DPDT, Slide Type)
M11	Switch		Output Impedance (SPDT, Slide Type)
	Printed Board	FCR 1033-1	

WIRING DATA

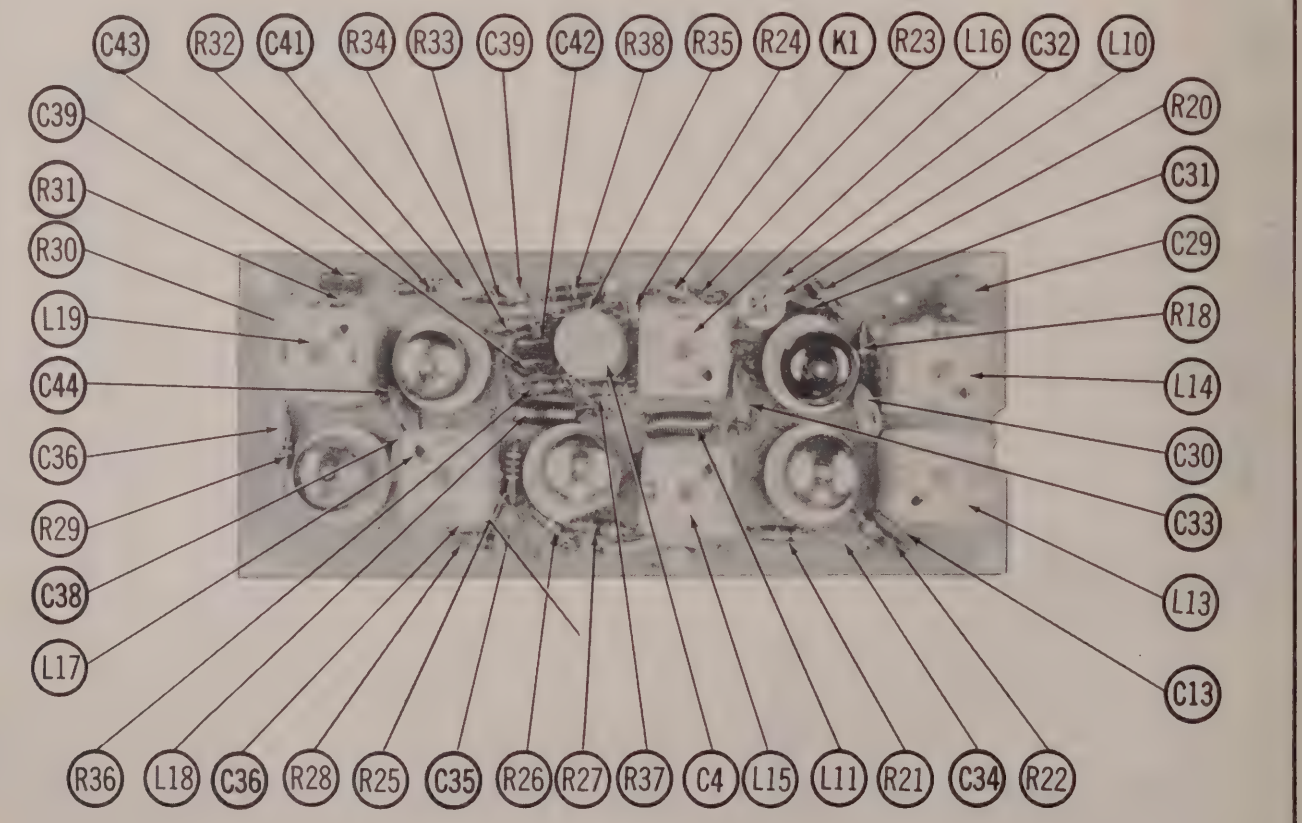
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



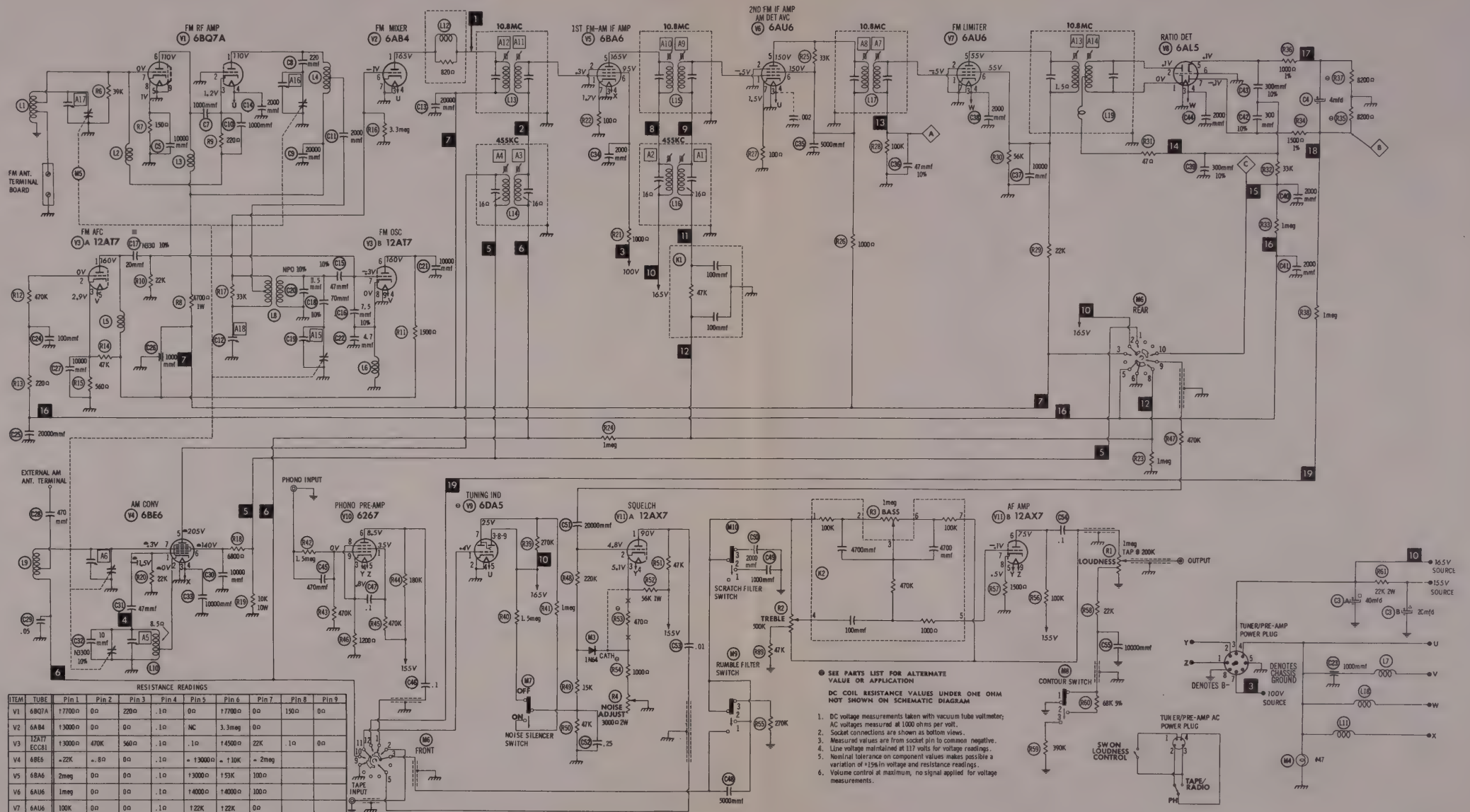
A Howard W. Sams CIRCUITRACE* Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PRINTED BOARD - TOP VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	†7700Ω	0Ω	220Ω	.1Ω	0Ω	†7700Ω	0Ω	150Ω	0Ω
V2	6AB4	†3000Ω	0Ω	0Ω	.1Ω	NC	3.3meg	0Ω		
V3	12AT7 ECC81	†3000Ω	470K	560Ω	.1Ω	.1Ω	†4500Ω	22K	1Ω	0Ω
V4	6BE6	≈22K	≈.8Ω	0Ω	.1Ω	≈ †3000Ω	≈ †10K	≈ 2meg		
V5	6BA6	2meg	0Ω	0Ω	.1Ω	†3000Ω	†53K	100Ω		
V6	6AU6	1meg	0Ω	0Ω	.1Ω	†4000Ω	†4000Ω	100Ω		
V7	6AU6	100K	0Ω	0Ω	.1Ω	†22K	†22K	0Ω		
V8	6AL5	1meg	1meg	0Ω	.1Ω	9200Ω	0Ω	9700Ω		
V9	6DA5 EM81	1meg	0Ω	NC	0Ω	.1Ω	NC	†220K	NC	†3000Ω
V10	6267 EF86	†470K	0Ω	1200Ω	140Ω	140Ω	†180K	0Ω	1200Ω	470K
V11	12AX7 ECC83	†70K	270K	2500Ω	140Ω	140Ω	†125K	670K	1500Ω	140Ω

FUNCTION SWITCH (M6) SHOWN IN PHONO POSITION.
SWITCH SEQUENCE:
1. PHONO
2. TAPE
3. AM
4. FM-AFC
5. FM

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM PIN 8 OF V18.
≈ MEASURED IN "AM" POSITION.
NC NO CONNECTION.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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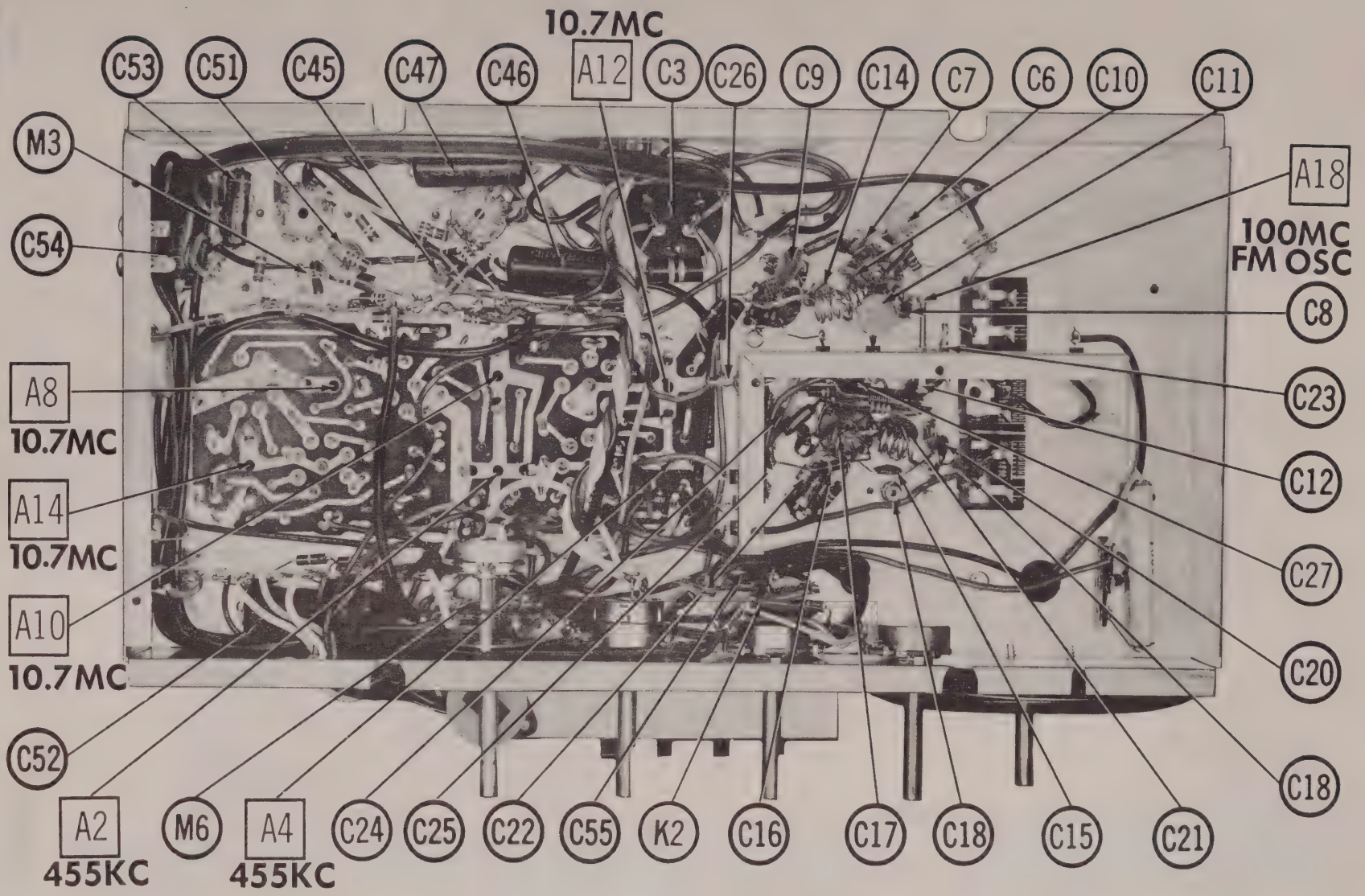
GUILD MODEL 818



TUNER CHASSIS BOTTOM VIEW - ALIGN, CAPACITOR, & MISC IDENT

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
Suggested alignment tools: A1, A2, A3, A4, A7, A8, A9, A10, A11, A12, A13, A14..... General Cement #5009, 8195, 8274, 8275, 8728, 8987
Walsco #2531
A5, A6, A16, A17..... General Cement #5000, 5003, 5004, 5008, 5009, 5066, 8195, #8277, 8290, 8607, 8821, 9105, 9106, 9291
Walsco #2515, 2520, 2522, 2523, 2534, 2537, 2538

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to AM antenna stator lug of tuning gang. Low side to chassis.	455KC (400~ Mod.)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	1600KC	"	1600KC	"	A5	"
3.		Loop	1400KC	"	Tune to 1400KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	200mmf	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis	10.8MC (Unmod.)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A7, A8, A9, A10, A11, A12	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point Ⓑ. Common to chassis.	A13	"
6.	"	"	"	"	"	DC probe to point Ⓒ. Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	200mmf	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.8MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point Ⓐ. Low side to chassis.	A7, A8, A9, A10, A11, A12	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A13	Disconnect stabilizing capacitor C4. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.	"	"	"	"	"	Vert. Amp. to point Ⓒ. Low side to chassis.	A14	Reconnect stabilizing capacitor C4. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A13 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna terminal. Low side to chassis.	108MC (Unmod.)	FM	108MC	DC probe to point Ⓑ. Common to chassis.	A15	Adjust for maximum deflection.
8.	"	"	106MC	"	Tune to 106MC signal	"	A16, A17	"
	Step 9 is not necessary unless associated circuit has been tampered with or repaired.							
9.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna terminal. Low side to chassis.	100MC	FM	100MC	DC probe to point Ⓑ. Common to chassis.	A18	Set C11 near center of range. Adjust A18 for maximum deflection.

FIG. 1

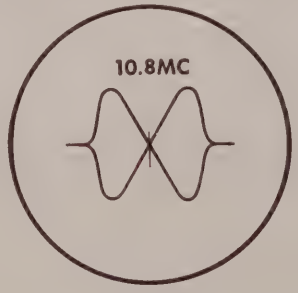
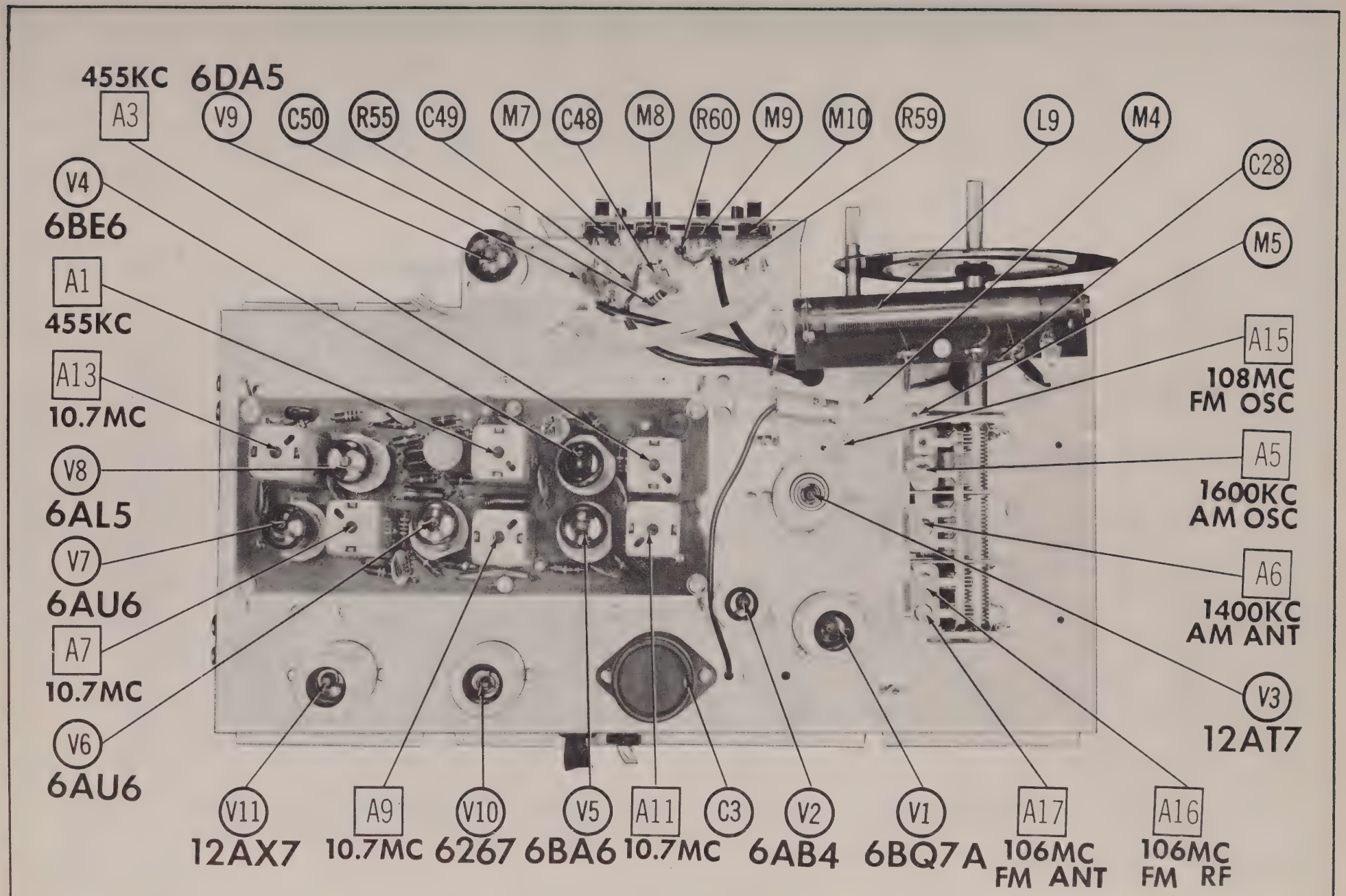
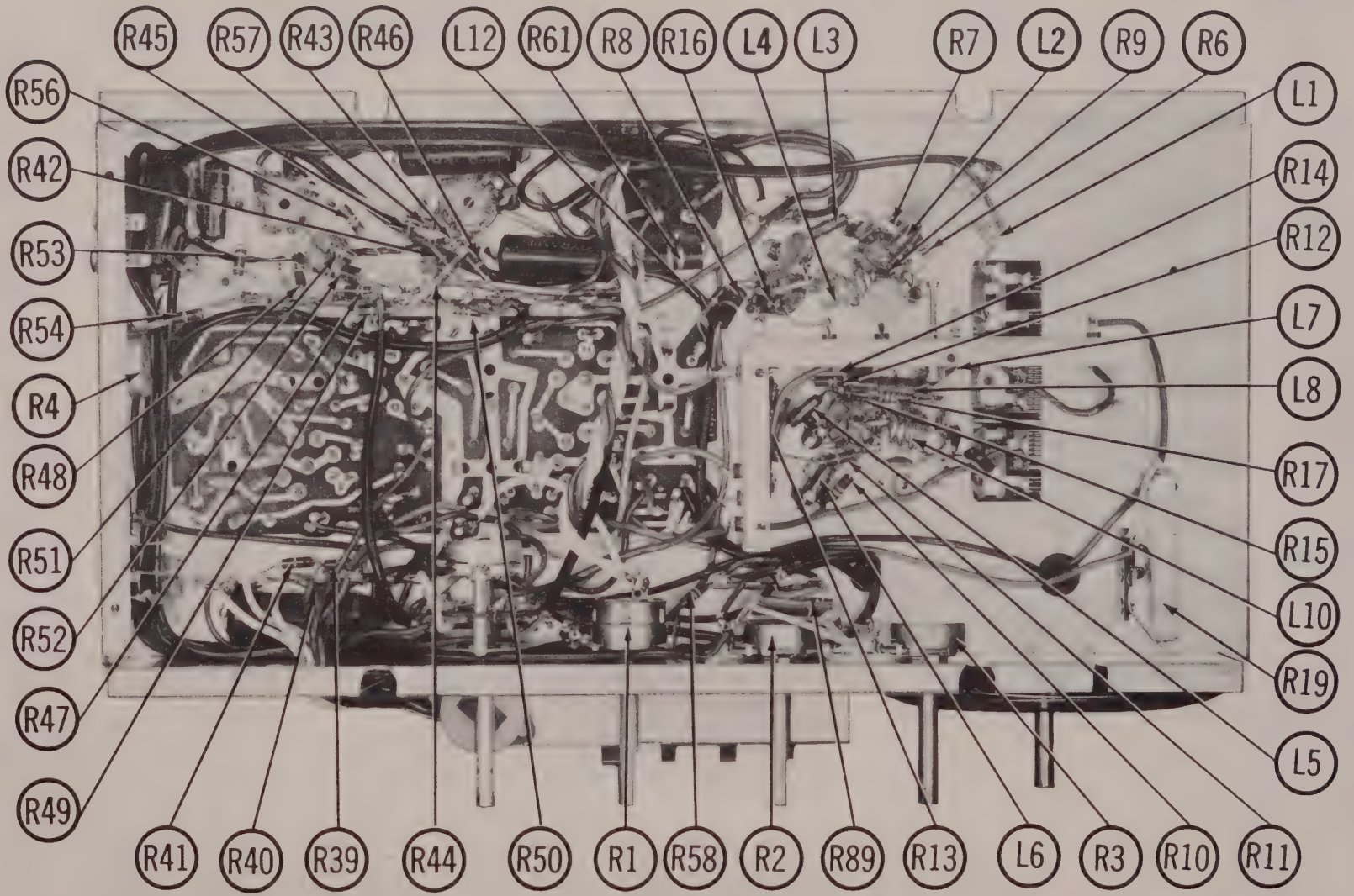


FIG. 2

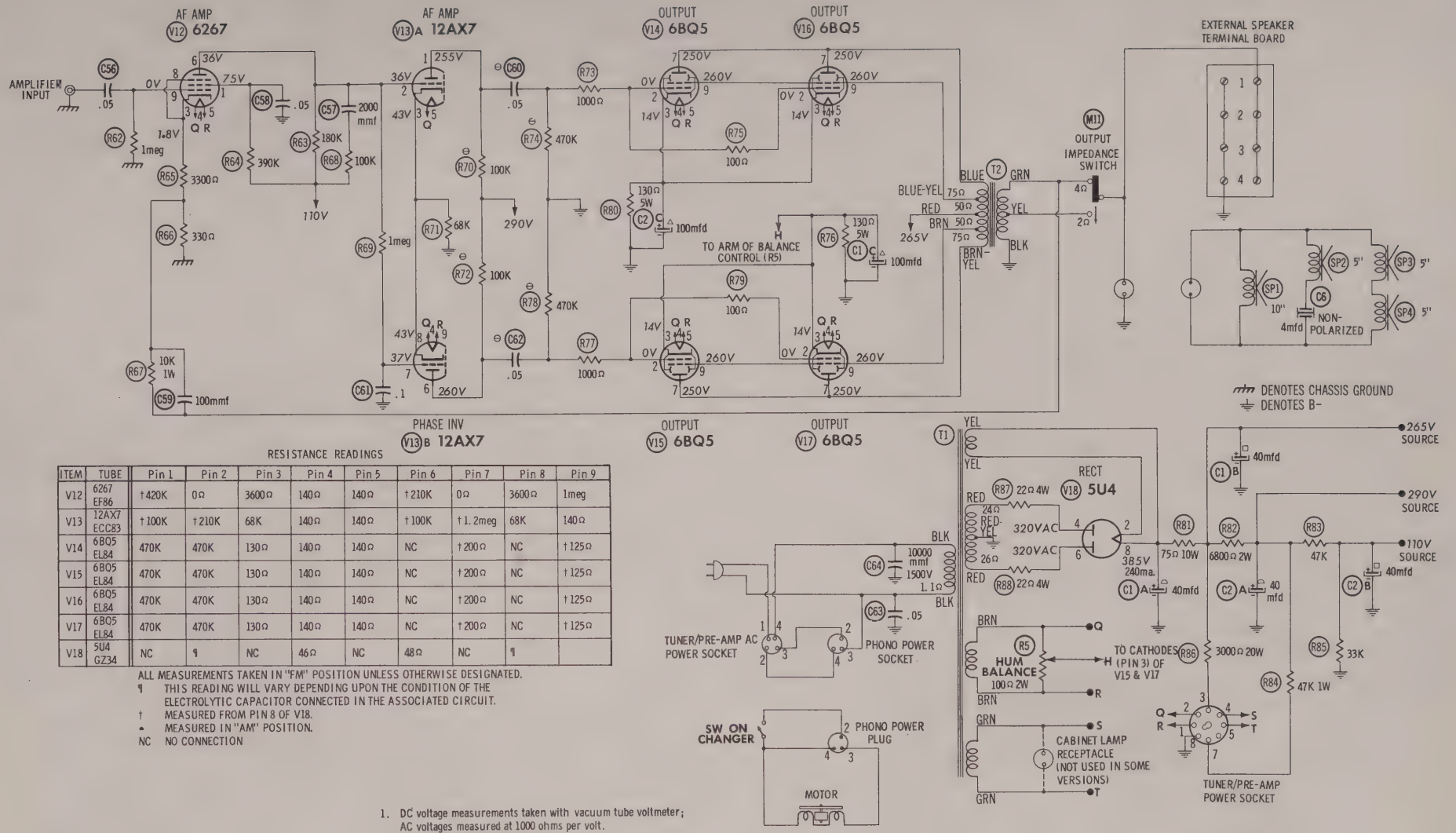


TUNER CHASSIS - TOP VIEW

GUILD
MODEL 818 "BONNET BOX"



TUNER CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V12	6267 EF86	†420K	0Ω	3600Ω	140Ω	140Ω	†210K	0Ω	3600Ω	1meg
V13	12AX7 ECC83	†100K	†210K	68K	140Ω	140Ω	†100K	†1.2meg	68K	140Ω
V14	6BQ5 EL84	470K	470K	130Ω	140Ω	140Ω	NC	†200Ω	NC	†125Ω
V15	6BQ5 EL84	470K	470K	130Ω	140Ω	140Ω	NC	†200Ω	NC	†125Ω
V16	6BQ5 EL84	470K	470K	130Ω	140Ω	140Ω	NC	†200Ω	NC	†125Ω
V17	6BQ5 EL84	470K	470K	130Ω	140Ω	140Ω	NC	†200Ω	NC	†125Ω
V18	5U4 GZ34	NC	¶	NC	46Ω	NC	48Ω	NC	¶	

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
† MEASURED FROM PIN 8 OF V18.
• MEASURED IN "AM" POSITION.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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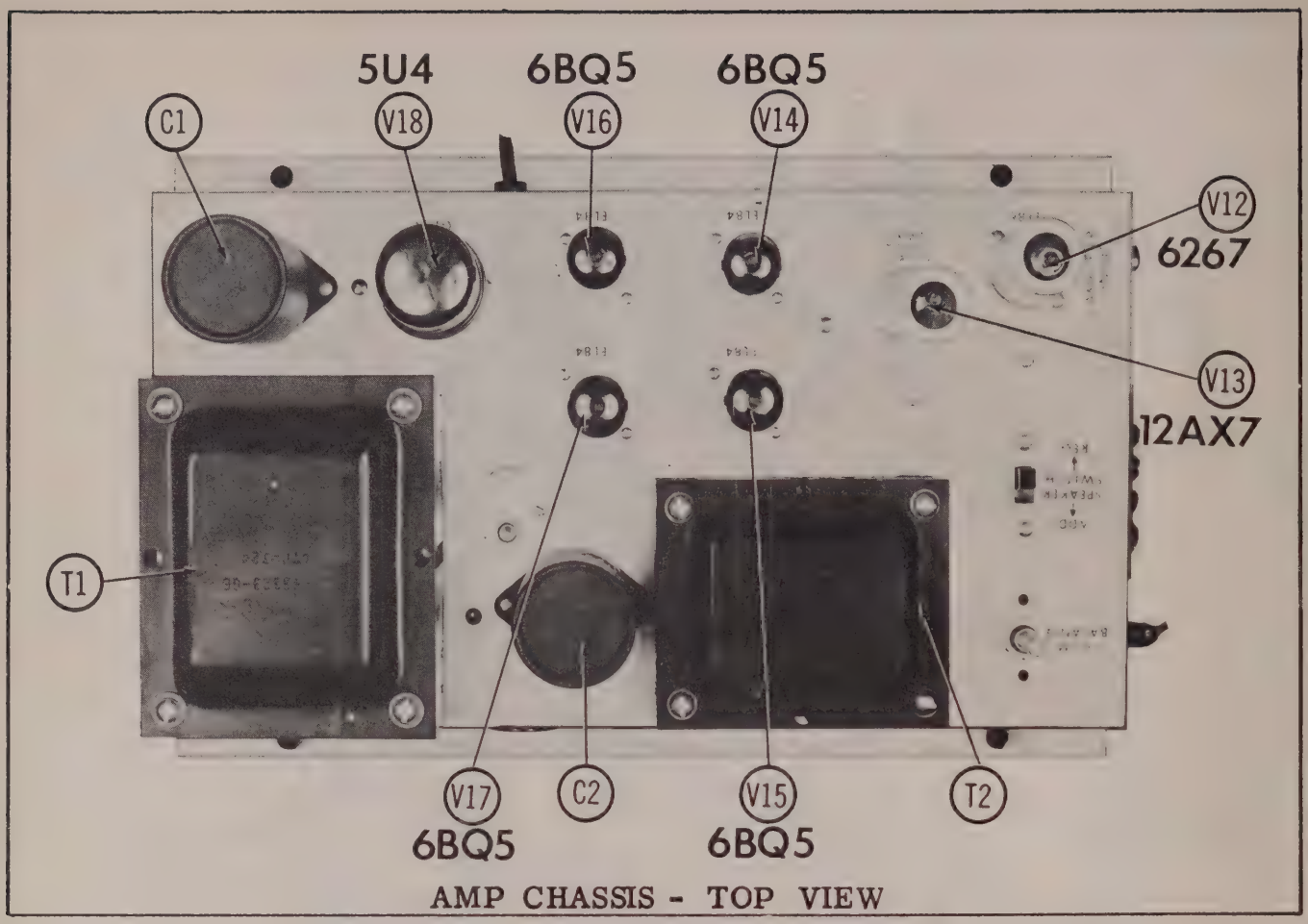
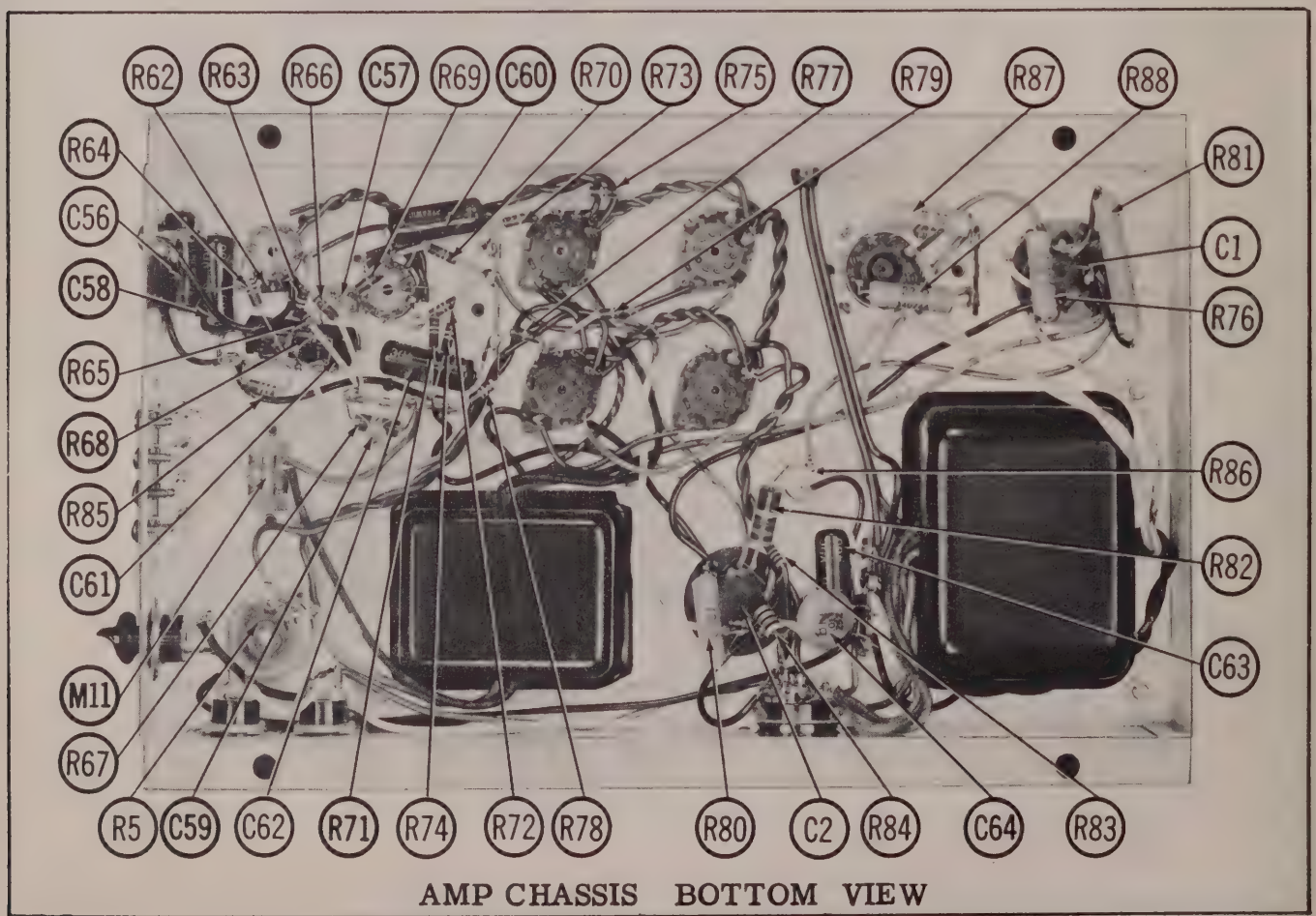
GUILD MODEL 818

GUILD MODEL 818 "BONNET BOX"



AMP CHASSIS - TOP VIEW



AMP CHASSIS BOTTOM VIEW

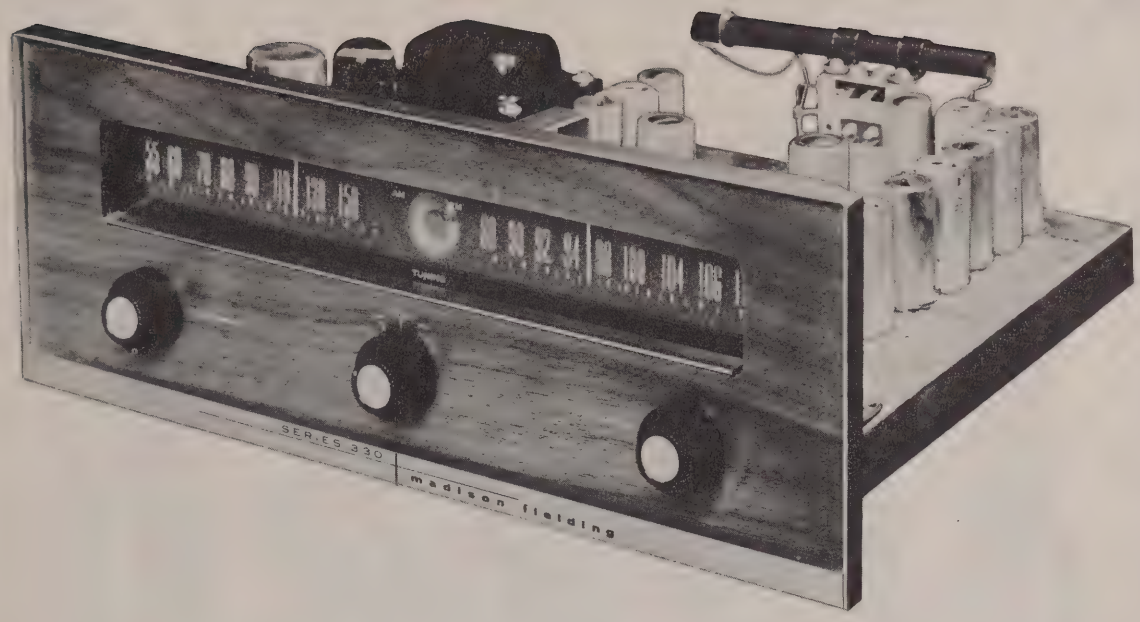
PHOTOFACT* Folder

*TRADE MARK

EIA ELECTRONIC INDUSTRIES ASSOCIATION MEMBER

MADISON FIELDING
MODEL 330

MADISON FIELDING
MODEL 330



MADISON FIELDING
MODEL 330

TRADE NAME	Madison Fielding Model 330		
MANUFACTURER	Madison Fielding Corp., 863 Madison St., Brooklyn 21, N. Y.		
TYPE SET	AC Operated FM-AM Tuner		
TUBES	Thirteen		
POWER SUPPLY	105-125 Volts AC, 60 Cycles	RATING	74 Watts, .70 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	535 - 1650KC	FREQ. MOD.	88 - 108MC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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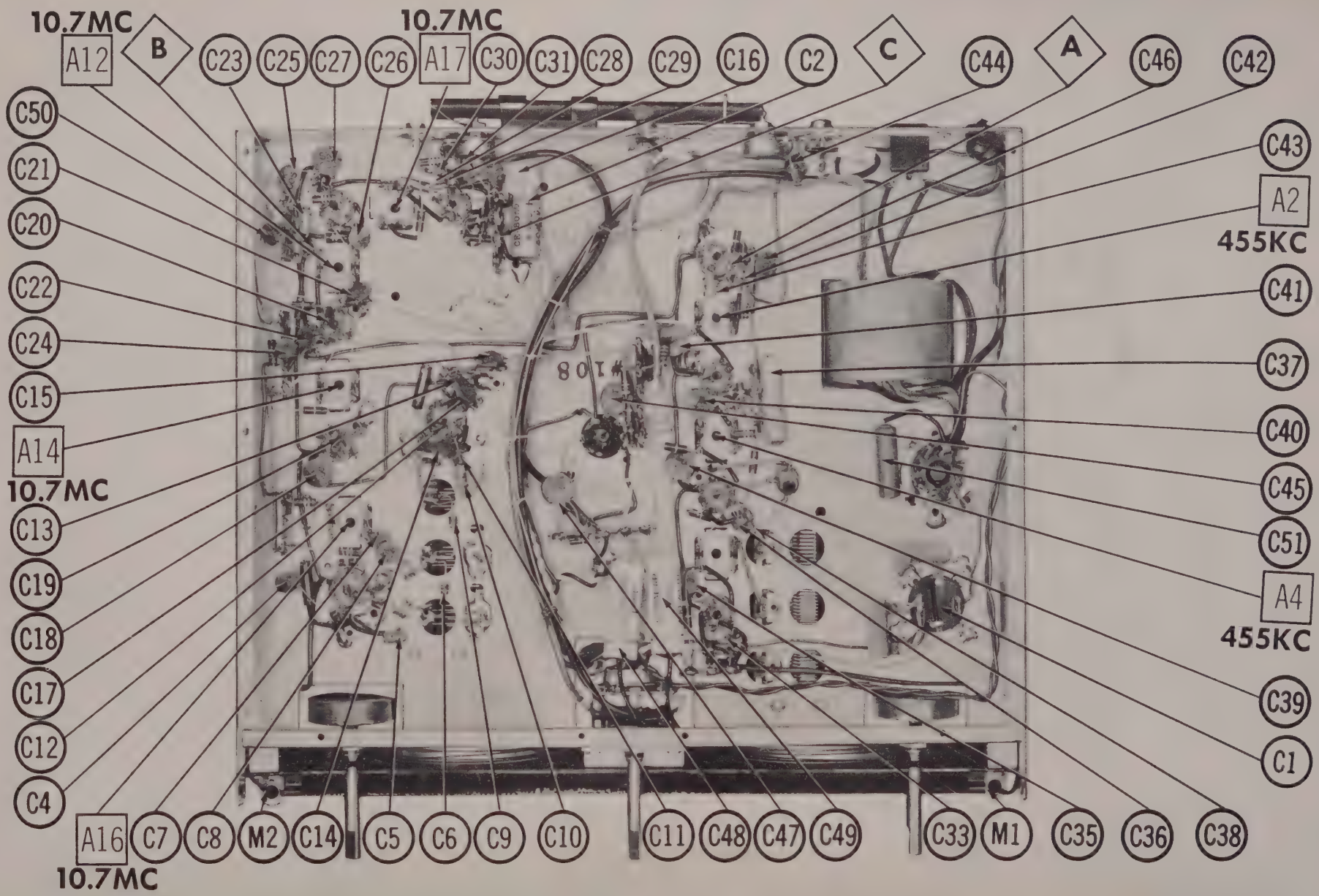
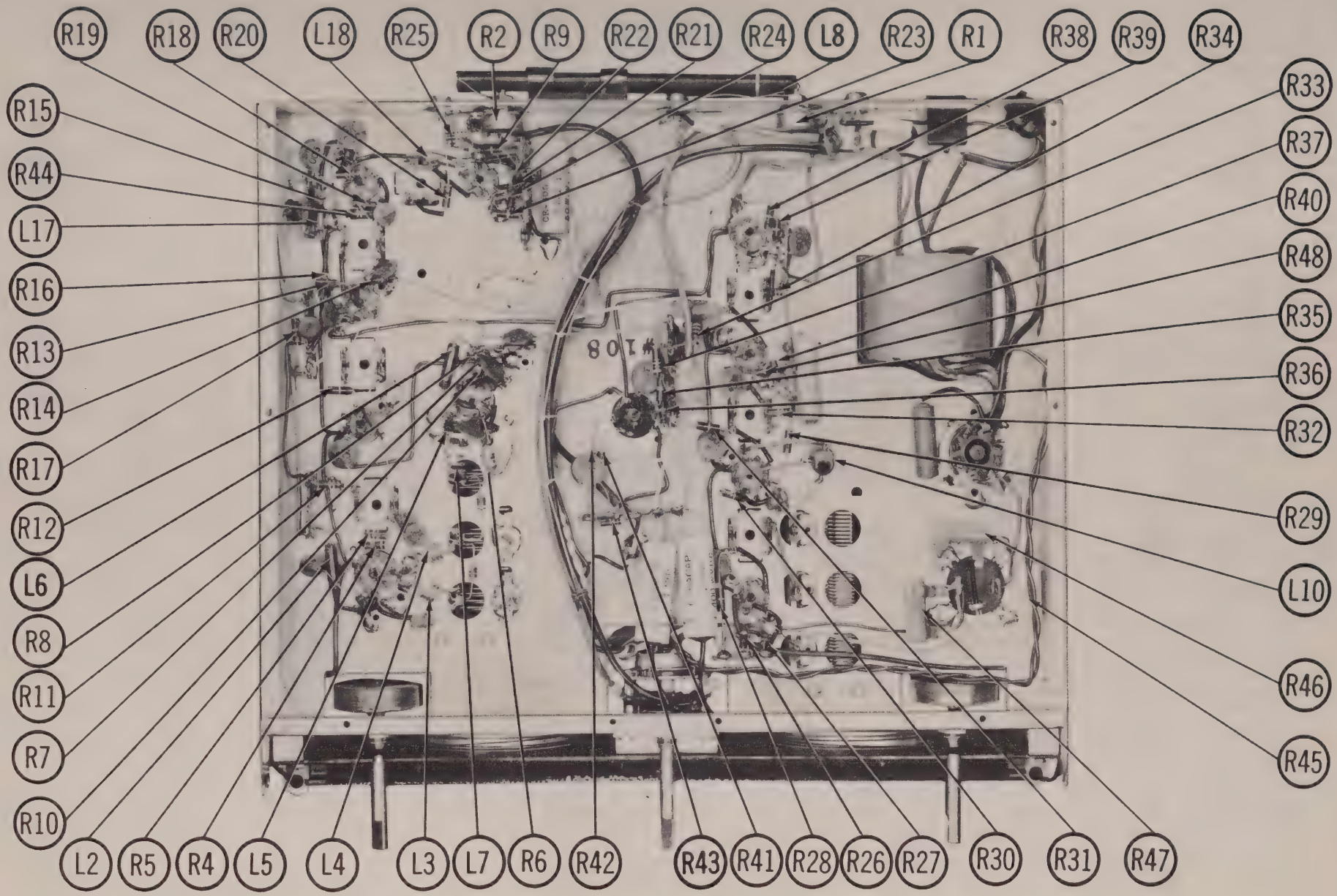
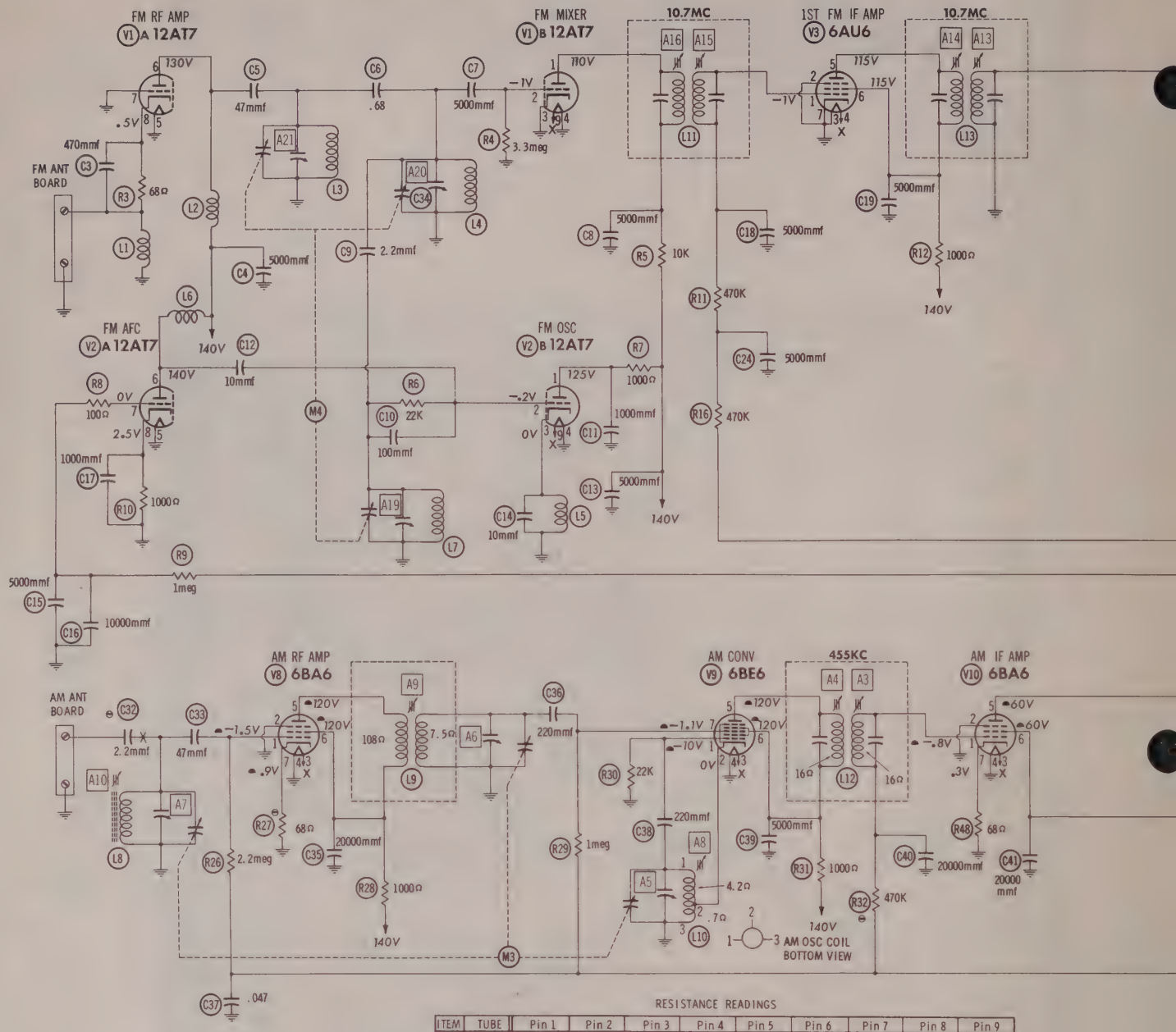


CHASSIS BOTTOM VIEW - CAPACITOR, MISC. & ALIGNMENT IDENT.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
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4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AT7	†12K	3.3meg	0Ω	0Ω	0Ω	†2500Ω	0Ω	68Ω	.1Ω
V2	12AT7	†3500Ω	22K	.1Ω	0Ω	0Ω	†2500Ω	1.5meg	1000Ω	.1Ω
V3	6AU6	1meg	0Ω	0Ω	.1Ω	†3500Ω	†3500Ω	0Ω		
V4	6AU6	.7Ω	0Ω	0Ω	.1Ω	†4500Ω	†4500Ω	100Ω		
V5	6AU6	100K	0Ω	0Ω	.1Ω	†21K	†21K	100Ω		
V6	6AL5	7800Ω	8300Ω	.1Ω	0Ω	570K	0Ω	570K		
V7	12AU7A	†2500Ω	2.2meg	49K	.1Ω	.1Ω	†2500Ω	2.2meg	49K	■Ω
V8	6BA6	▲5.5meg	▲0Ω	.1Ω	0Ω	▲†3500Ω	▲†3500Ω	▲68Ω		
V9	6BE6	▲22K	▲.7Ω	.1Ω	0Ω	▲†3500Ω	▲†3500Ω	▲4.5meg		
V10	6BA6	▲3.8meg	▲0Ω	.1Ω	0Ω	▲†20K	▲†20K	▲68Ω		
V11	6AL5	0Ω	550K	.1Ω	0Ω	0Ω	0Ω	2.2meg		
V12	6AF6G	NC	.1Ω	†20K	†120K	†2500Ω	NC	■Ω	0Ω	
V13	5Y3GT	NC	¶	NC	95Ω	TP	100Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.

▲ MEASURED IN "AM" POSITION
† MEASURED FROM PIN 8 OF V13.
▲ MEASURED FROM PIN 3 OF V7.
■ MEASURED FROM PIN 8 OF V7.
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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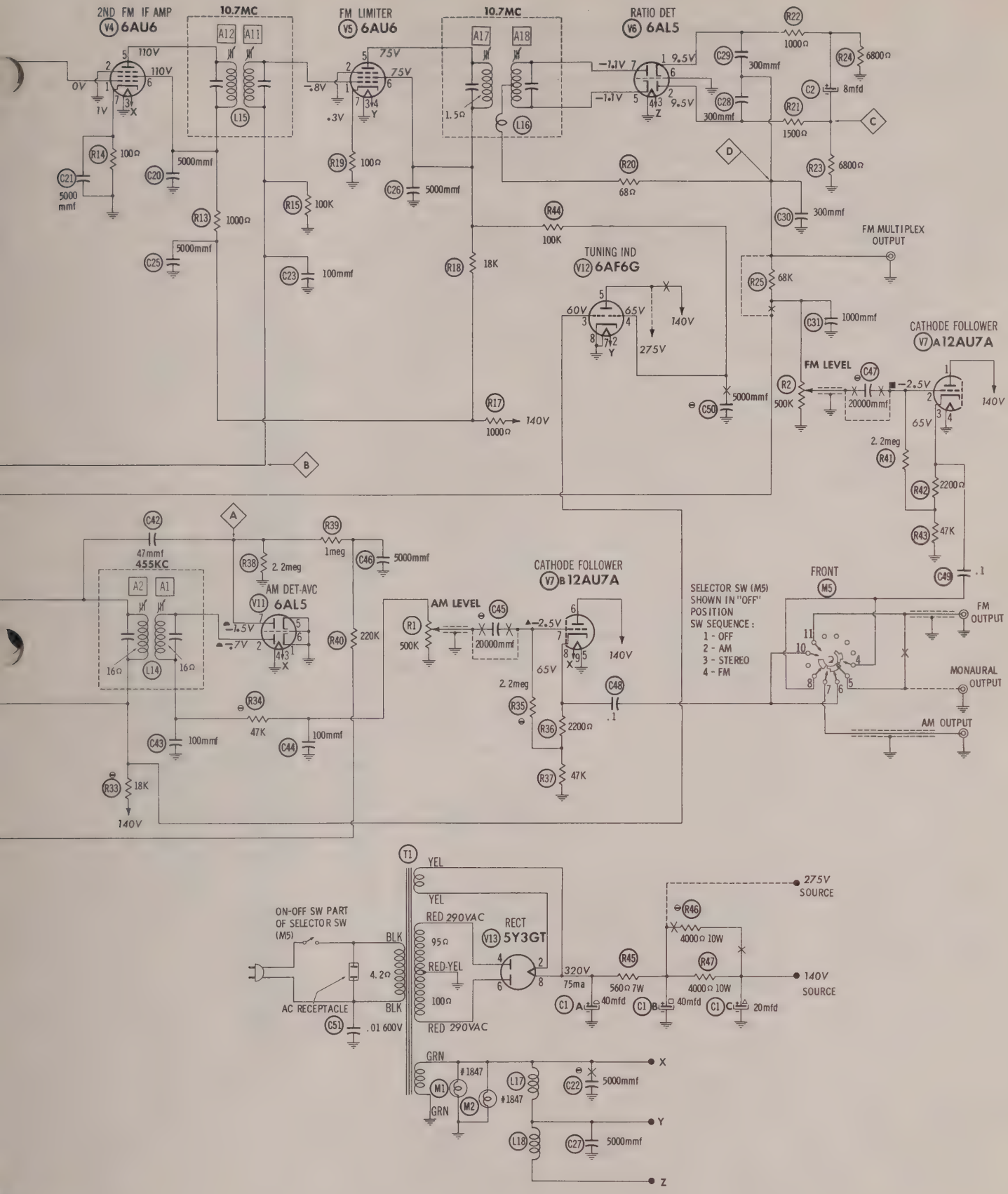


MADISON FIELDING
MODEL 330

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3, A4, A9, A11, A12, A13, A14, A15, A16, A17, A18..... General Cement #5097, 8727; Walsco #2515
A8..... General Cement #8606, 8606L, 8282, 9295; Walsco #2526, 2543, 2544, 2545
A5, A6, A7, A19, A20, A21..... General Cement #5000, 5003, 5014, 5015, 5016, 8276, 8290; Walsco #2512, 2515, 2522, 2523, 2525, 2537

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01mfd	High side to pin 7 (grid) of 6BE6 (V9). Low side to chassis.	455KC (400~ Mod.)	AM	Tuning gang fully open	DC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	"	High side to AM antenna stator lug of tuning gang. Low side to chassis.	1400KC	"	1400KC	"	A5, A6, A7	"
3.	"	"	600KC	"	600KC	"	A8, A9, A10	Adjust for maximum deflection. Repeat steps 2 and 3.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	200mmf	High side to pin 2 (grid) of 12AT7 (V1). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe to point (B). Common to chassis.	A11, A12, A13, A14, A15, A16	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point (C). Common to chassis.	A17	"
6.	"	"	"	"	"	DC probe to point (D). Common to chassis.	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	200mmf	High side to pin 2 (grid) of 12AT7 (V1). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point (B). Low side to chassis.	A11, A12, A13, A14, A15, A16	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A17	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.	"	"	"	"	"	Vert. Amp. to point (D). Low side to chassis.	A18	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A17 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	270Ω Carbon Resistor	Across FM antenna terminals with 270Ω in high side.	105MC (Unmod.)	FM	105MC	DC probe to point (C). Common to chassis.	A19, A20 A21	Adjust for maximum deflection.
8.	"	"	90MC	"	90MC	"	L7, L3, L4	Adjust for maximum deflection by compressing or expanding coil turns. Repeat steps 7 and 8.

FIG. 1

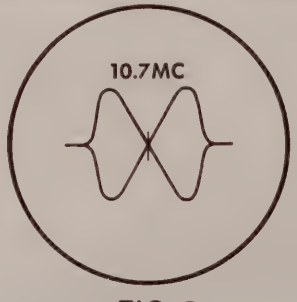
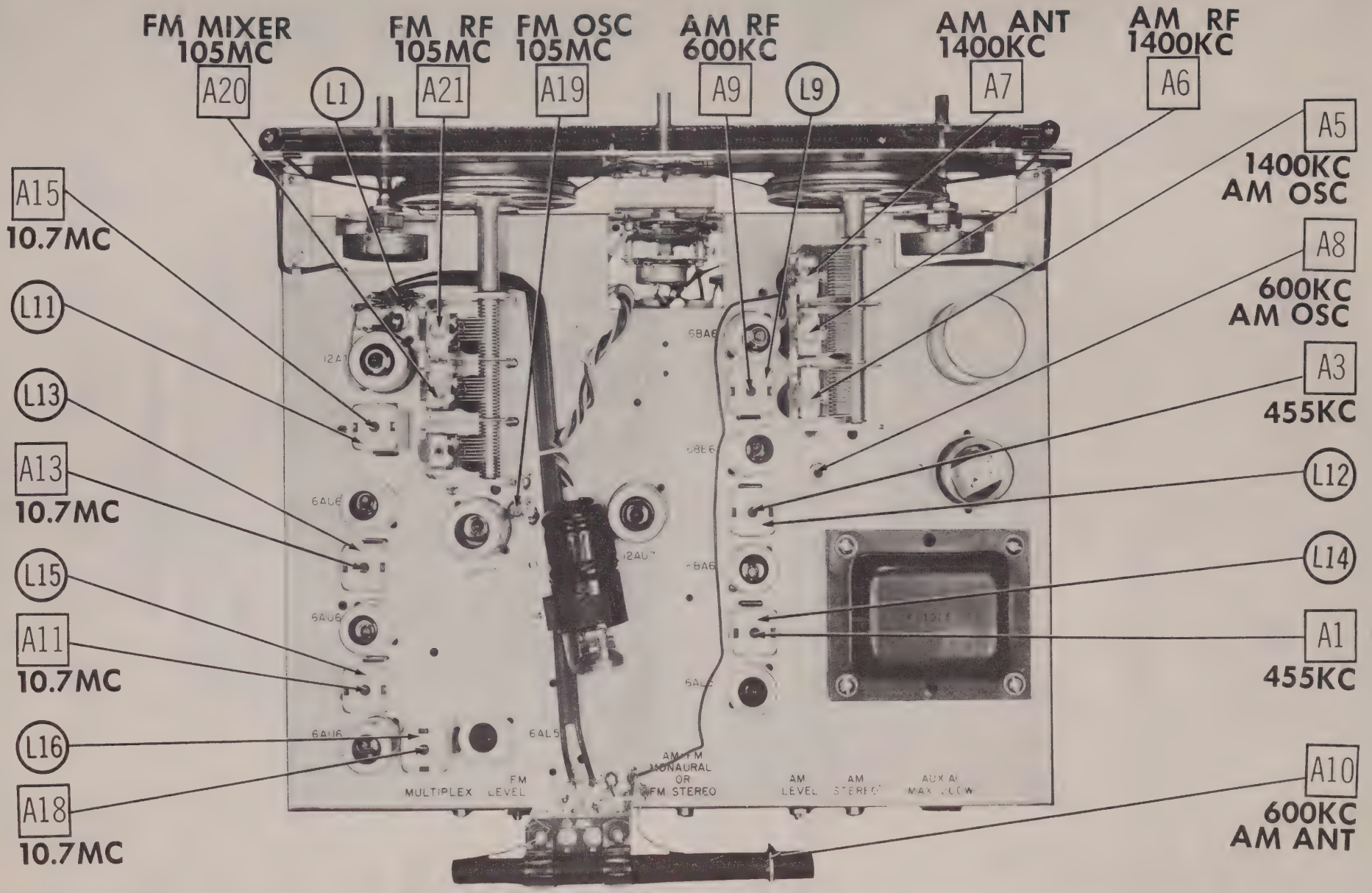


FIG. 2



CHASSIS-TOP VIEW – INDUCTOR AND ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Madison Fielding PART No.	NOTES
R3	68Ω			
R4	3.3meg			
R5	10K			
R6	22K			
R7	1000Ω			
R8	100Ω			
R9	1meg			
R10	1000Ω			
R11	470K			
R12	1000Ω			
R13	1000Ω			
R14	100Ω			
R15	100K			
R16	470K			
R17	1000Ω			
R18	18K			
R19	100Ω			
R20	68Ω			
R21	1500Ω			
R22	1000Ω			
R23	6800Ω			
R24	6800Ω			
R25	68K			
R26	2.2meg			
R27	68Ω			①
R28	1000Ω			
R29	1meg			
R30	22K			
R31	1000Ω			
R32	470K			②
R33	18K			③
R34	47K			④
R35	2.2meg			
R36	2200Ω			
R37	47K			
R38	2.2meg			
R39	1meg			
R40	220K			
R41	2.2meg			
R42	2200Ω			
R43	47K			
R44	100K			
R45	560Ω	7		
R46	4000Ω	10		⑤
R47	4000Ω	10		
R48	68Ω			

① Some versions use 100Ω in this application.
② Some versions use 1000Ω in this application.
③ Some versions use 15K in this application.
④ Some versions use 470K in this application.
⑤ Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Madison Fielding PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil		19-7047				
L2	RF Choke						3.3 Microhenries
L3	FM RF Coil	LR-1002					
L4	FM RF Coil	LR-1002					
L5	Cathode Choke		19-1000	BC-561	4602		1 Microhenry
L6	RF Choke						3.3 Microhenries
L7	FM Osc. Coil	LO-1004					
L8	Loopstick	LA-1001					
L9	AM RF Coil	TR-1001	14-1411				
L10	AM Osc. Coil	LO-1001	14-1055 *				* Drill new mounting hole

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA Madison Fielding PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L11	1st FM IF	TI-1001	16-3487	FM-254	1463		
L12	1st AM IF	TI-1003	16-6758	BC-352	12-C1	RF-1	
L13	2nd FM IF	TI-1005	16-3487	FM-254	1463		
L14	2nd AM IF	TI-1003	16-6758	BC-352	12-C2	RF-2	
L15	3rd FM IF	TI-1001	16-3487	FM-254	1463		
L16	Ratio Detector	TI-1002	17-3498	FM-255	1465		
L17	Fil. Choke						1.9 Microhenries
L18	Fil. Choke						1.9 Microhenries

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Madison Fielding PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .70A	580VCT @ .075A	5V @ 1.8A	TP-1005	P9305	P-3052			22R04	R-9B
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 3.7A									

MISCELLANEOUS

ITEM No.	PART NAME	Madison Fielding PART No.	NOTES
M1	Lamp	IL-1001	#1847
M2	Lamp	IL-1001	#1847
M3	Tuning Cap.	CV-1001	AM, 3 Gang (Ant. 11-488mmf, RF 11-360mmf, Osc. 15-146mmf)
M4	Tuning Cap.	CV-1005	FM, 3 Section
M5	Switch	SF-1004	Function (4 Position, Rotary Wafer Type)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp. - FM Mixer	12AT7	
V2	FM Osc. - FM AFC	12AT7	
V3	1st FM IF Amplifier	6AU6	
V4	2nd FM IF Amplifier	6AU6	
V5	FM Limiter	6AU6	
V6	Ratio Detector	6AL5	
V7	FM Cath. Follower - AM Cath. Follower	12AU7A	
V8	AM RF Amplifier	6BA6	
V9	AM Converter	6BE6	
V10	AM IF Amplifier	6BA6	
V11	AM Detector - AVC	6AL5	
V12	Tuning Indicator	6AF6G	
V13	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Madison Fielding PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	450		AFH3-43-50	C0340	FP376.9	TMT-39	T-165	TVL-3786
B	■40	350			BR1045			MT-4510	
C	▲20	300							
C2	8	50		PRS150V8	BBR8-150	TC41	TD-8-150	MT-1508	TVA-1405

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Madison Fielding PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C4	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C5	47			SI 47	D6-470	LT6Q47	UC-5447	5GA-Q47	
C6	.68				TCZ-R68				
C7	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	①
C8	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C9	2.2			NPO-SI 2.2	TCZ-2R2	CTA6V22C		5TCCB-V22	
C10	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C11	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C12	10			DI-00001	DD-100	L10Q1	UC-541	5GA-Q1	
C13	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C14	10			DI-00001	DD-100	L10Q1	UC-541	5GA-Q1	
C15	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C16	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	

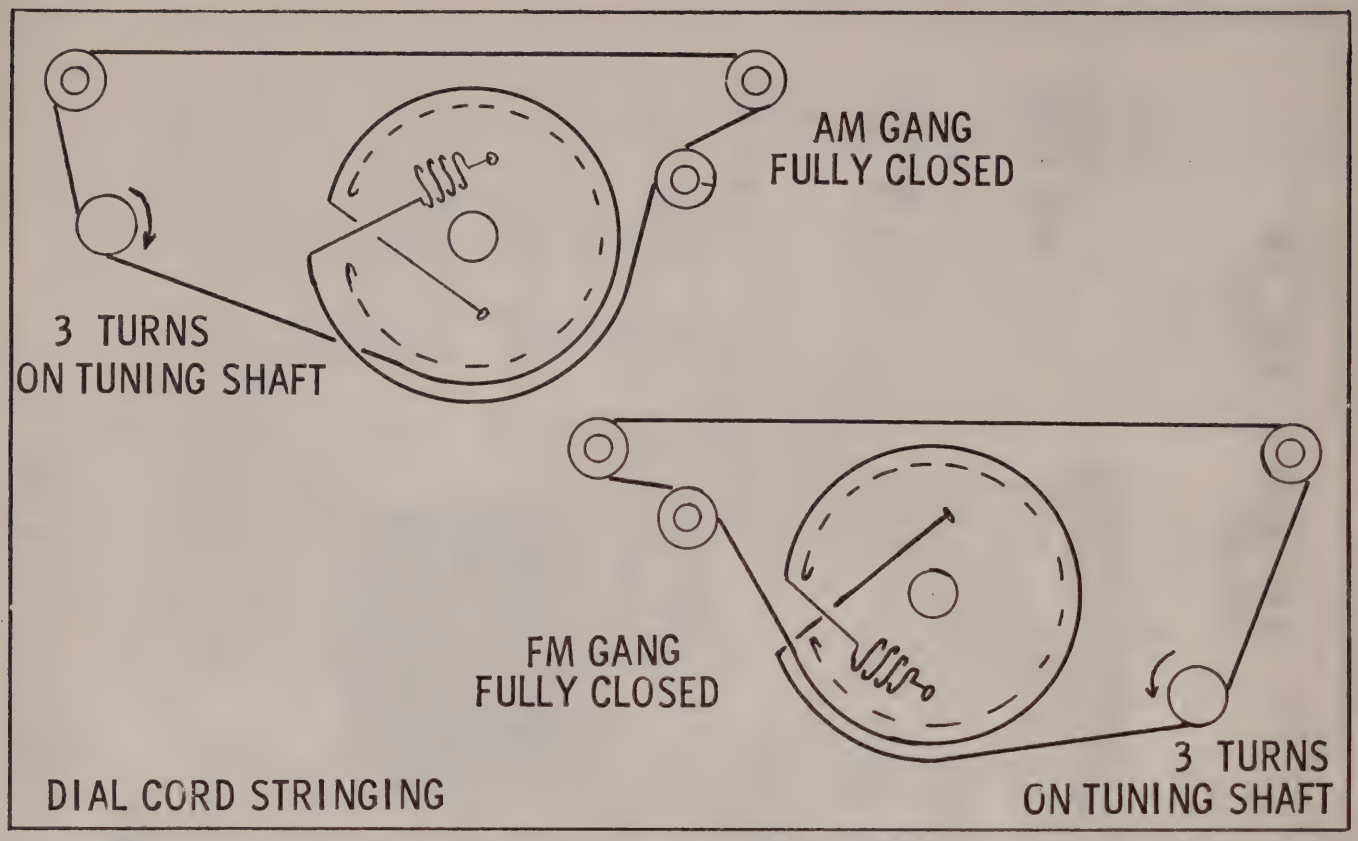
CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Madison Fielding PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C17	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C18	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C19	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C20	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C21	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C22	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	②
C23	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C24	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C25	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C26	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C27	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C28	300			SI 300	D6-301	LT6T3	UC-533	5GA-T3	
C29	300			SI 300	D6-301	LT6T3	UC-533	5GA-T3	
C30	300			SI 300	D6-301	LT6T3	UC-533	5GA-T3	
C31	1000			SI 1000	D6-102	LT6D1	UC-521	5GA-D1	
C32	2.2			NPO-SI 2.2	TCZ-2R2	CTA6V22C		5TCCB-V22	②
C33	47			SI 47	D6-470	LT6Q47	UC-5447	5GA-Q47	
C34			CV-1004						
C35	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C36	220			SI 220	D6-221	LT6T22	UC-5322	5GA-T22	
C37	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C38	220			SI 220	D6-221	LT6T22	UC-5322	5GA-T22	
C39	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C40	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C41	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C42	47			SI 47	D6-470	LT6Q47	UC-5447	5GA-Q47	
C43	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C44	100			DI-0001	DD-101	L10T1	UC-531	5GA-T1	
C45	20000			BPD-02	DD-203	BYB6S2		5HK-S2	②
C46	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C47	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C48	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C49	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C50	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	②
C51	.01	600		P888N-01	D6-103	CUB6S1	GEM-611	6TM-S1	

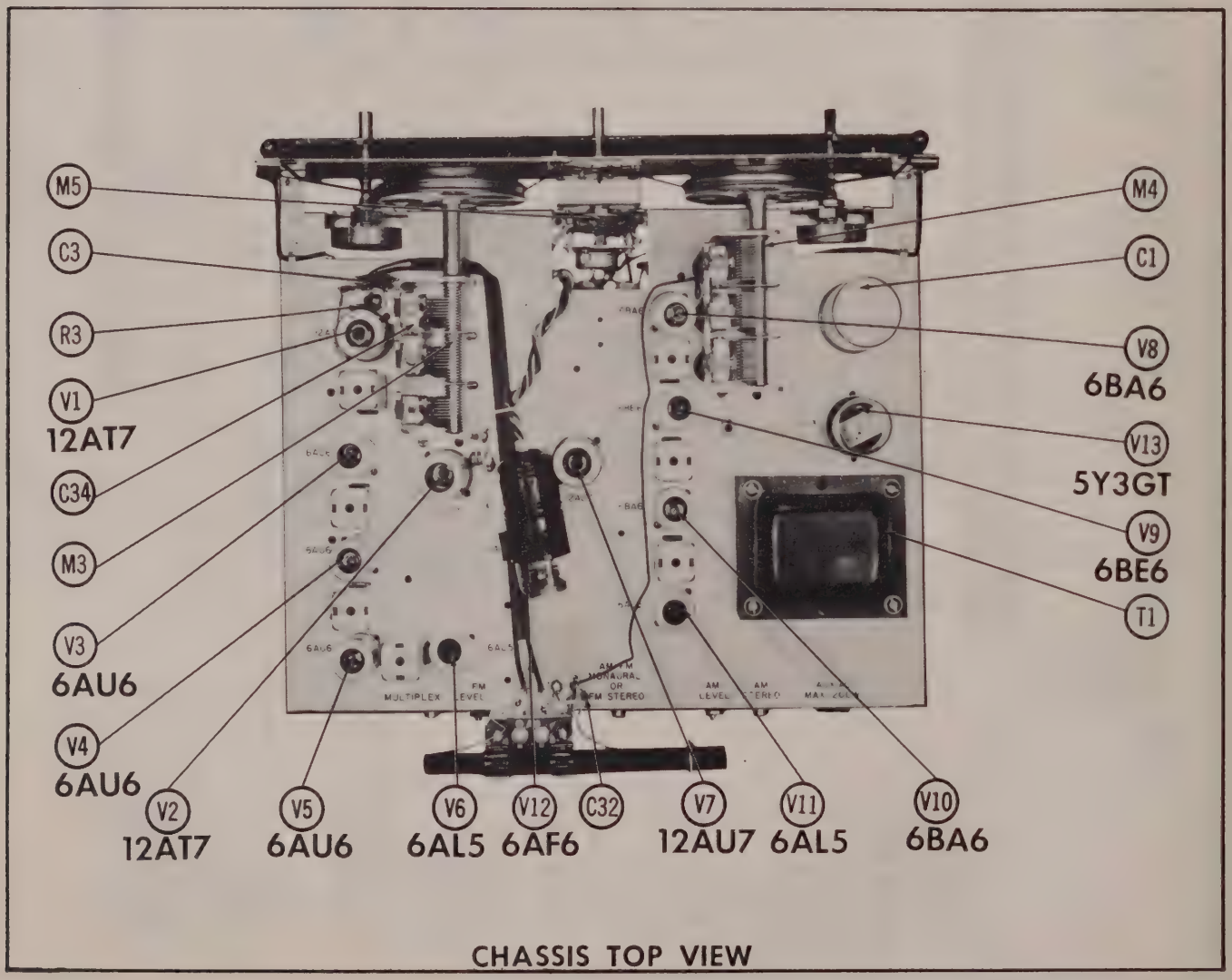
① Some versions use 10000mmf in this application. ② Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Madison Fielding PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K	1/4	RV-5041	JP-504				AM Level
R2	500K	1/4	RV-5041	JP-504				FM Level



DIAL CORD STRINGING



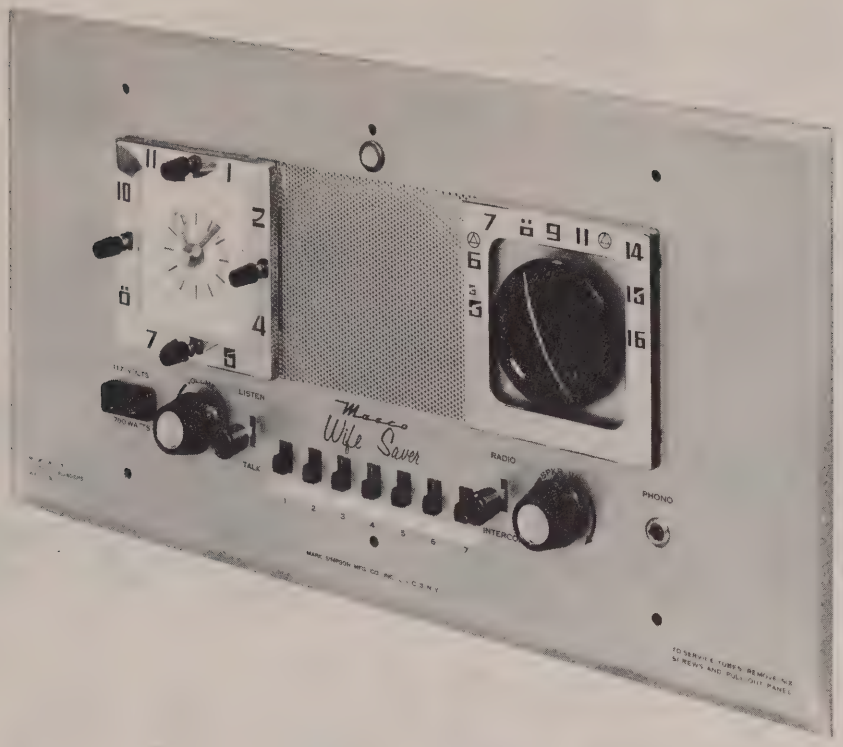
CHASSIS TOP VIEW

PHOTOFACT* Folder

EIA

MASCO
MODEL RIC-7

MASCO
MODEL RIC-7



MASCO
MODEL RIC-7

TRADE NAME	Masco Model RIC-7 "Wife Saver"
MANUFACTURER	Mark Simpson Mfg. Co., Inc., 32-28 49th Street, Long Island City 3, N. Y.
TYPE SET	AC Operated AM Receiver and Intercommunications Unit with Electric Clock
TUBES	Five
POWER SUPPLY	110-120 Volts AC, 60 Cycles
RATING	27 Watts, .29 Amp. @ 117 Volts AC (Less Clock)
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Radio-Intercom switch must be in "Radio" position.
Suggested alignment tools: A1, A2, A3, A4.....General Cement #5097, 8727
Walsco #2515
A5, A7 ..... General Cement #5004, 5008, 5009
Walsco #2520
A6, A8 .....General Cement #8271, 8273, 8275, 8276, 8721, 8722, 9150, 9298, 5003
Walsco #2516, 2519

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to antenna stator lug of tuning gang. Low side to B-.	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001mfd to reduce hum modulation.
2.	"	"	1600KC	1600KC	"	A5	"
3.	"	High side to antenna terminal. Low side to B-.	600KC	600KC	"	A6	Adjust for maximum output while rocking tuning gang. Repeat steps 2 and 3.
4.	"	"	1400KC	Tune to 1400KC signal	"	A7	Adjust for maximum output.
5.	"	"	600KC	Tune to 600KC signal	"	A8	"

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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H849

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	AF Amplifier-Intercom. Preamplifier	12AT7	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	MASCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	150		PRS150V8040	BBRD8415	TCT3115	TDLD-11	FMT-1540	TVA-2462
B	40	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	MASCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	10			SI 10	D6-100	LT6Q1	GP-541	5GA-Q1	
C3	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C4	47			N750-DI 47	DTN-47	C10Q47U	NT-5447	5TCU-Q47	N750 10%
C5	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C6	.05	200		P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C7	220				D6-221	5R5T22		MS-322	10%
C8	220				D6-221	5R5T22		MS-322	10%
C9	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C10	330				D6-331	5R5T33		MS-333	10%
C11	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C12	.05	600		P688N-05	DF-503	CUB6S5	GEM-615	6TM-S5	
C13	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	①
C14	330			BPD-00033	DD-331	L10T33	UC-5333	5GA-T33	
C15	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	②
C16	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C17	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C18	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C19	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C20	.05	600		P688N-05	DF-503	CUB6S5	GEM-615	6TM-S5	
C21	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	

① Some versions may use 5000mmf in this application. ② Some versions may use 1000mmf in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	MASCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	2026	B-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-26	
R2A	75Ω	2	CM16287		A43-75	WPK100	R100L	Speaker Volume
B	Shaft				KSS-3	Not Req.	DS-36	

* Use KR with CRL "red label" controls and KB with "blue label" controls.

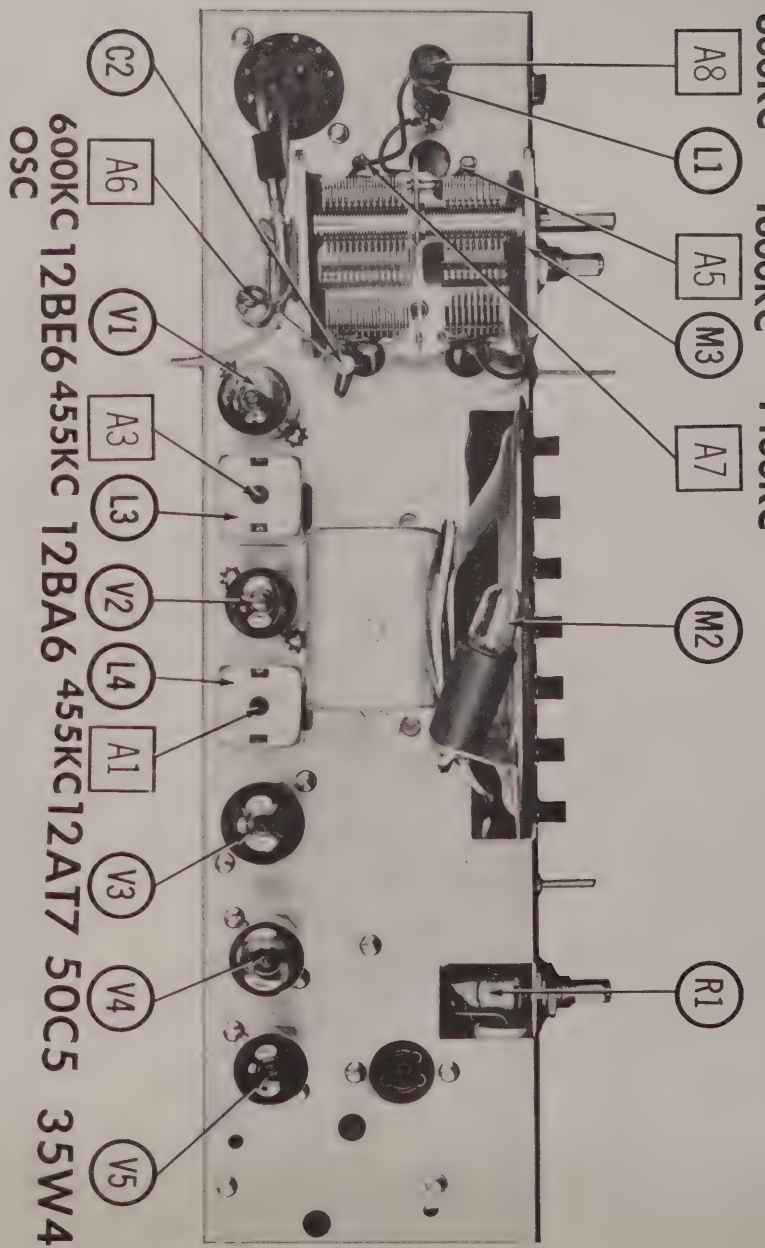
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MASCO PART No.	NOTES
R3	1meg			
R4	22K			
R5	2.7meg			
R6	150Ω			
R7	47K			
R8	470K			
R9	1meg			
R10	270K			
R11	47K			

ITEM No.	RATING OHMS	RATING WATT	MASCO PART No.	NOTES
R12	1meg			
R13	27K			
R14	150K			
R15	470K			
R16	47K			
R17	270K			
R18	150Ω			
R19	1000Ω	1		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MASCO PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Ant. Coil	X-101M	14-7001 *				* Disregard tap.
L2	Osc. Coil	678	14-1077 †				† Enlarge Mounting Hole
L3	Input IF	1655-7	16-6758	BC-352	12-C1	RF-1	
L4	Output IF	1655-7	16-6758	BC-353	12-C2	RF-2	

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MASCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1 :	46	1N-113S						
	1 :	240	1N-100 ①						① Alternate part number.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MASCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	2000Ω	14Ω	13-0-3C	Z1001						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MASCO PART No.	QUAM PART No.	
SP1	4"	PM	14Ω	3313-13	4A1Z14	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MASCO PART No.	CBS PART No.	SYLVANIA PART No.	
M1	1N51		1N51	1N34A	Detector (Pigtail)

MISCELLANEOUS

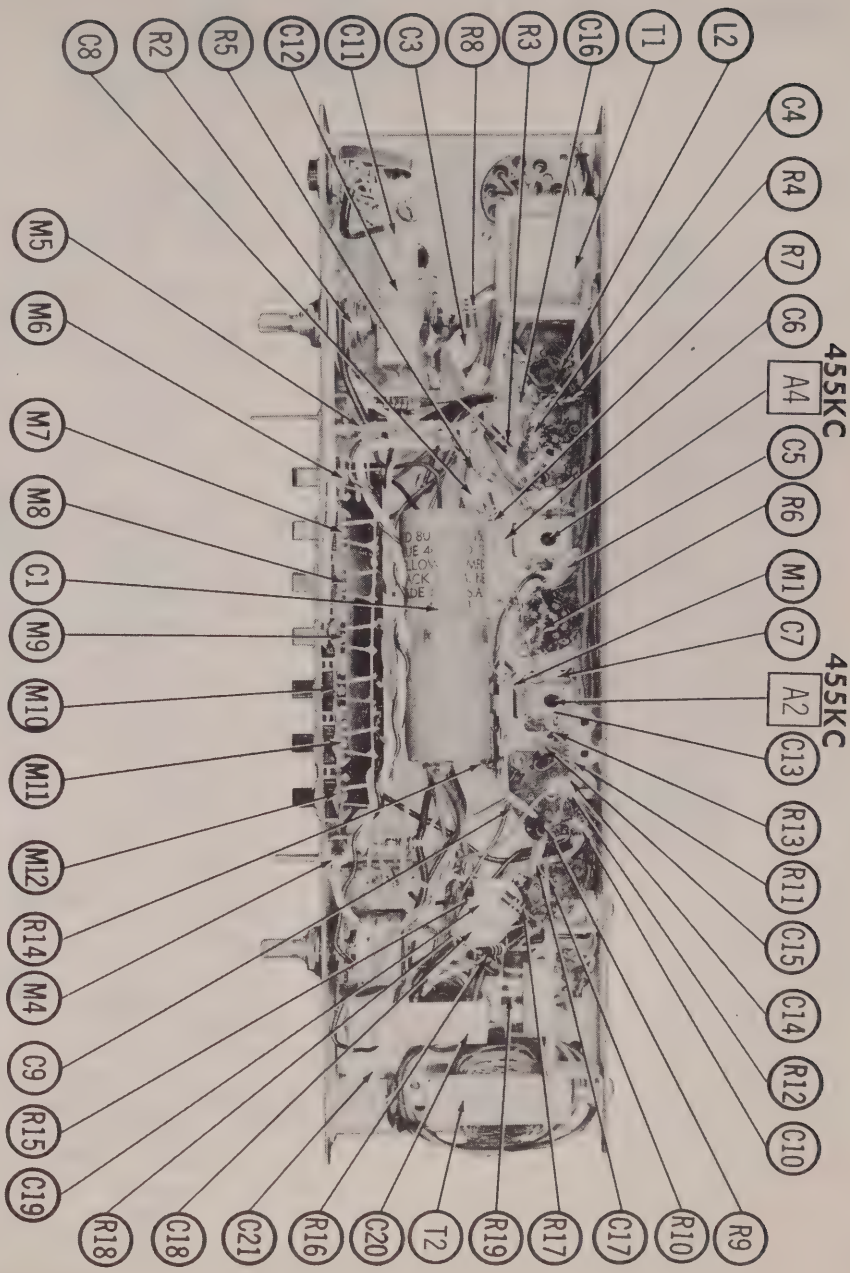
ITEM No.	PART NAME	MASCO PART No.	NOTES
M2	Lamp		#NE51
M3	Tuning Cap.		2 Gang (Ant. 22-496mmf, Osc. 12-275mmf)
M4	Switch		Talk-Listen (Push, Spring Return Type)
M5	Switch	1699	Radio-Intercom (Push, Spring Return Type)
M6	Switch	SS-2	Station Selector (SPST, Slide Type)
M7	Switch	SS-2	Station Selector (SPST, Slide Type)
M8	Switch	SS-2	Station Selector (SPST, Slide Type)
M9	Switch	SS-2	Station Selector (SPST, Slide Type)
M10	Switch	SS-2	Station Selector (SPST, Slide Type)
M11	Switch	SS-2	Station Selector (SPST, Slide Type)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

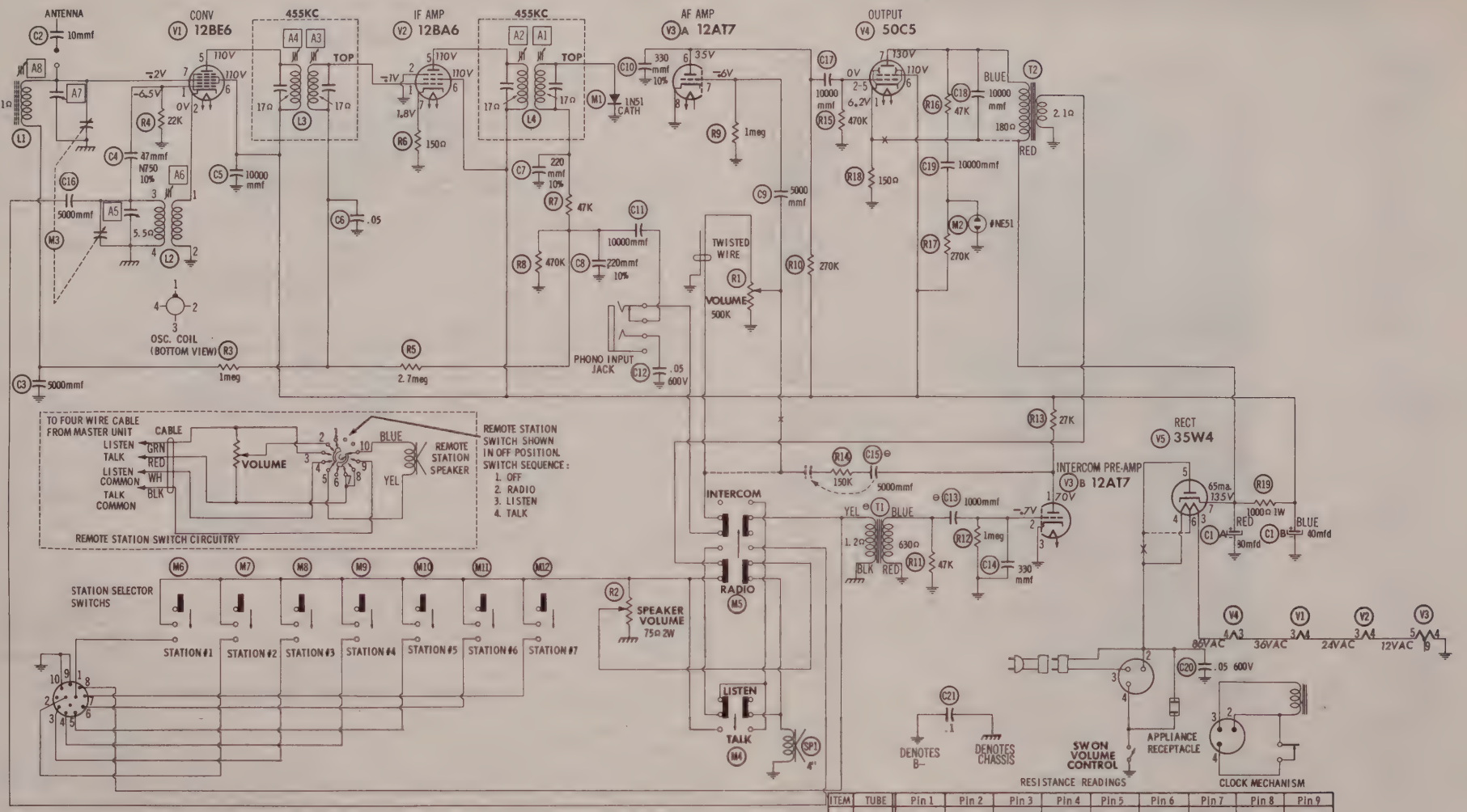
Power Cord (Interlock Type) ..... Use BELDEN No. 8874

CHASSIS—BOTTOM VIEW



MASCO
MODEL RIC-7

FOLDER 13



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BE6	22K	.5Ω	36Ω	24Ω	†1000Ω	¶†1000Ω	4.2meg		
V2	12BA6	3.2meg	0Ω	24Ω	12Ω	†1000Ω	†1000Ω	150Ω		
V3	12AT7	†28K	1meg	0Ω	12Ω	0Ω	†270K	1meg	0Ω	6Ω
V4	50C5	150Ω	470K	36Ω	86Ω	470K	†1000Ω	†180Ω		
V5	35W4	TP	TP	86Ω	120Ω	120Ω	110Ω	¶		

RADIO-INTERCOM SWITCH IN "RADIO" POSITION

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

† MEASURED FROM PIN 7 OF V5.

TP TIE POINT

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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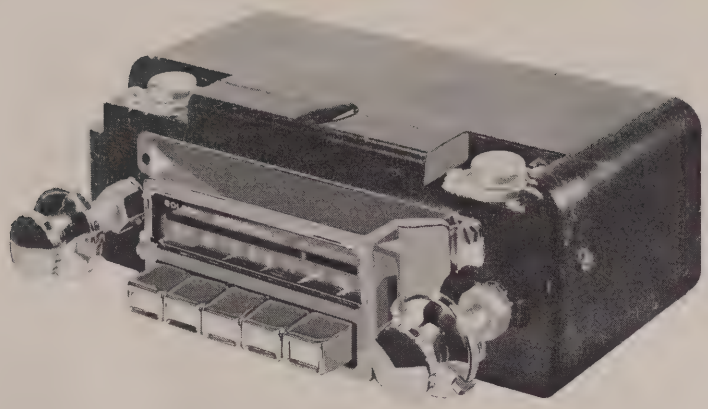
MASCO MODEL RIC-7

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

MOTOROLA
MODEL GV-800

MOTOROLA
MODEL GV-800



TRADE NAME	Motorola Model GV-800
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated Universal Type Transistorized AM Automobile Receiver
POWER SUPPLY	12 Volt Storage Battery
RATING	.46 Amp. @ 12.6 volts DC
TUNING RANGE—BROADCAST	540-1610KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

Suggested alignment tools:
A1, A2, A3, A4..... General Cement #8282, 8728, 8274, 8988, 5008, 8195, 8987, 8729
Walsco #2531, 2532
A5, A6, A7 ..... General Cement #5008, 9106, 5004, 9291
Walsco #2537, 2523, 2538, 2520, 2515,2534
A8, A9, A10.....General Cement #8279, 8897
Walsco #2521, 2524

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to antenna receptacle. Low side to chassis.	262.5KC (400∿ Mod)	1000KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	Thru dummy to antenna receptacle.	1610KC	High Freq. end stop	"	A5, A6, A7	"
3.	"	"	1200KC	Tune to 1200KC signal	"	A6, A7	"

The following steps are not necessary unless tuner has been tampered with or associated circuits have been repaired. If necessary, back tuning(cores A8, A9, A10) 7/16" out of coils. (Alignment tool Motorola #66A76278 may be used.)

4.	Fig. 1	Thru dummy to antenna receptacle.	1610KC	High Freq. end stop	Across voice coil	A5, A6, A7	Adjust for maximum output.
5.	"	"	1200KC	Tuner carriage 9/32" from high end stop	"	A8, A9, A10	Adjust for maximum output. Repeat steps 4 and 5. Step 4 should be last adjustment.
6.	"	"	"	Tune to 1200KC signal	"	A6, A7	Adjust for maximum output.

With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum output.

PUSHBUTTON ADJUSTMENT

1. Tune to desired station manually.
2. Pull out pushbutton, then press in firmly.
3. Repeat for remaining buttons.

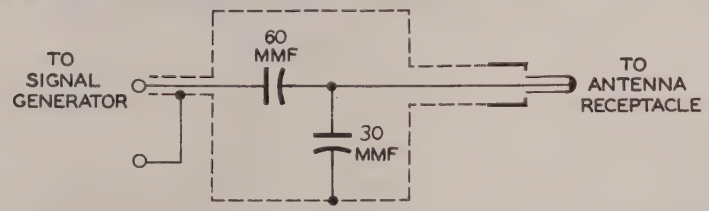


FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

H819

SET 431 FOLDER 14

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N247	RF Amplifier		2N247		2N247	PNP
X2	2N140	Converter		2N140	2N486	2N140	PNP
X3	2N139	1st IF Amplifier		2N139	2N484	2N139	PNP
X4	2N139	2nd IF Amplifier		2N139	2N483	2N139	PNP
X5	2N109	AF Amplifier		2N109	2N362	2N109	PNP
X6	2N270	Driver		2N270	2N360	2N270	PNP
X7	2N176	Output	CBS-2N155	2N176		2N176	PNP
X8	2N176	Output	CBS-2N155	2N176		2N176	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	100	16	23B560487	AFH3-00-90	B0045	WP300.5			TVLS-3026 *
B	▲100	16			BBR100-15				
C	■500	16							
C2	25	15	23K543075	PWE25025	NL30-15	TT15X30	ML30-15	MQ-0225	TE-1157.1
C3	1	25	23K543077	PWE25001	NL1-6		ML1-25		TE-1200
C4	5	15	23K543076	PWE25005	NL5-15	TT25X5	ML5-15		TE-1152
C5	5	15	23K543076	PWE25005	NL5-15	TT25X5	ML5-15		TE-1152
C6	100	15	23B543074	SRE15V100	NLW100-15	TT15X100	ML100-15		TE-1162

* Not normally in distributors stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

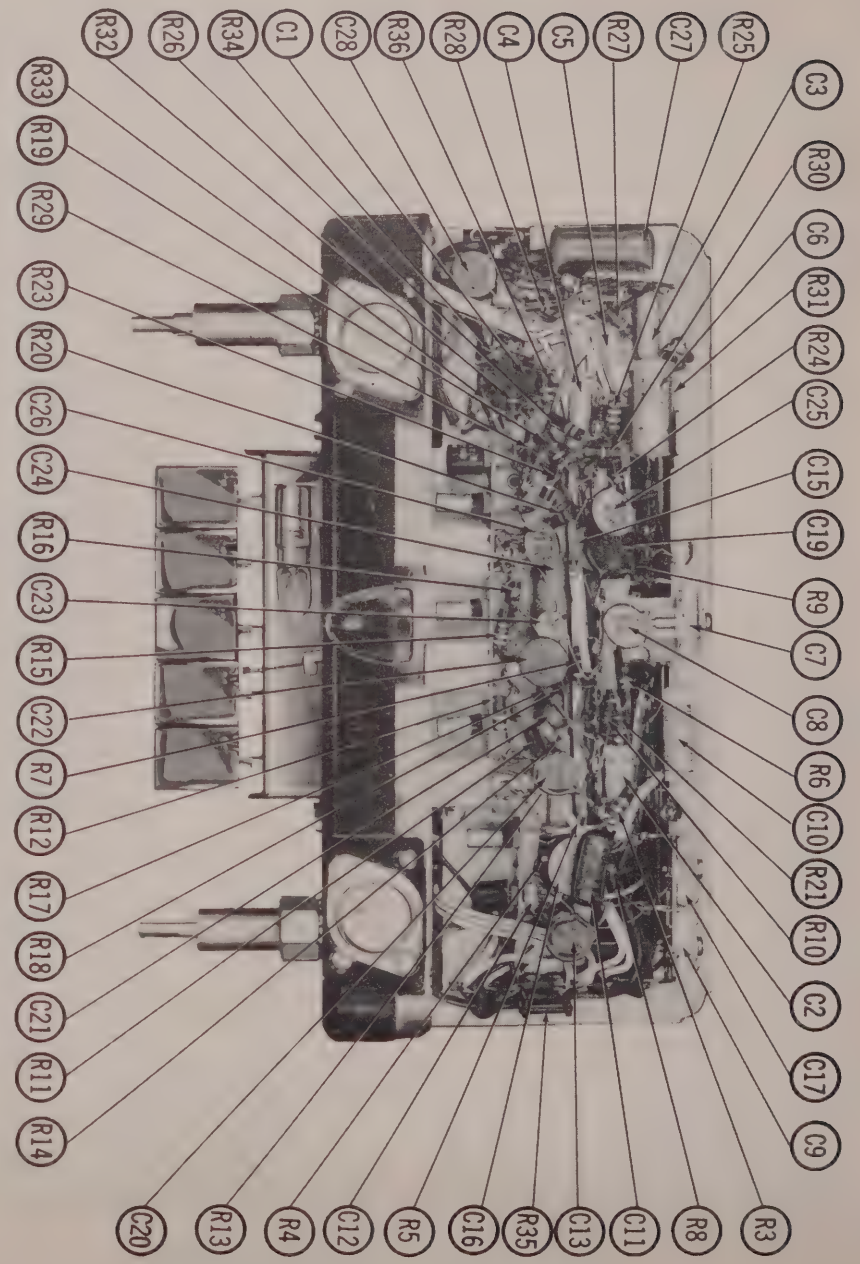
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C7	40-430		20K542847						
C8	100		21R24032	N750-DI 100	DTN-100	C10T1U	CN7-310	5TCU-T1	N750 10%
C9	20-120		20K541014						
C10	.002	1000	8R122291	P1088N-002	DD-202	CUB10D2	GEM-1022	10TM-D2	
C11	.1	50	8R128280	P285N-1	DF-104	STM1P1	GEM-201	2TM-P1	
C12	4.7		21R115954	NPO-SI 4.7	TCZ-4R7	CTA6V47C	CNO-547	5TCCB-V47	
C13	50000	200	21A740805	BPD-05	DF-503				
C14	.1	50	8R128280	P285N-1	DF-104	STM1P1	GEM-201	2TM-P1	
C15	50000	200	21A740805	BPD-05	DF-503				
C16	100		21R124032						N220 5%
C17	20-120		20A77536						
C18	270		21R128268			C10T27U	CN7-327		N750 5%
C19	3300		21R120422	BPD-0033	DD-332	BYA10D33	B-233	5HK-D33	
C20	50000	200	21A740805	BPD-05	DF-503				
C21	.1	50	8R128280	P285N-1	DF-104	STM1P1	GEM-201	2TM-P1	
C22	50000	200	21A740805	BPD-05	DF-503				
C23	15		21R122331	NPO-DI 15	DTZ-15	C10Q15C	CNO-415	5TCC-Q15	NPO 10%
C24	.1	50	8R128280	P285N-1	DF-104	STM1P1	GEM-201	2TM-P1	
C25	2000		21R121106	BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C26	25000	200	21K740806						
C27	.2	50	8R128281	P288N-2		CUB6P2	GEM-402	2TM-P2	
C28	25000	200	21K740806						
C29	25000	200	21K740806						
C30	25000	200	21K740806						
C31A	300	300	21A522033						
B	300	300							
C32	.5	100	8K122076	P185N-5		CUB2P5	GEM-205	68P20	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	10K	½	18B543069					Tone
B	10K	½						Volume, Tap @ 300Ω
C	Switch							
R2	500Ω	1½(WW)	18B542930		39-500-100		FL-500-S	Transistor Bias, With 50Ω Stop

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MOTOROLA PART No.	NOTES
R3	10K		6K119932	
R4	10K		6K119932	
R5	1000Ω		6K121302	
R6	100K		6K125534	
R7	6800Ω		6K119930	
R8	15K		6K119934	
R9	1200Ω		6K119925	
R10	3300Ω		6K121725	
R11	220Ω		6K127099	
R12	150K		6K122323	
R13	10K		6K119932	
R14	1000Ω		6K121301	
R15	390Ω		6K122312	
R16	8200Ω		6K119931	
R17	1800Ω		6K122445	
R18	1000Ω		6K121301	
R19	390Ω		6K122312	

ITEM No.	RATING OHMS	RATING WATT	MOTOROLA PART No.	NOTES
R20	6800Ω		6K119930	
R21	15K		6K119934	
R22	120Ω		6K128226	
R23	1000Ω		6K121301	
R24	82K		6K125179	
R25	390K		6R5646	
R26	10K		6K119932	
R27	2700Ω		6K119926	
R28	100K		6K125534	
R29	1000Ω		6K121301	
R30	82Ω		6K127516	
R31	6800Ω		6K119930	
R32	2700Ω		6K119926	
R33	15Ω		6R2034	
R34	470Ω		6K127633	
R35	4.5Ω Cold		6K542967	
R36	330Ω		6K127940	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA MOTOROLA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Ant. Coil	24C535458					Part of M5
L2	Ant. Trans.	24K561162					Part of M5
L3	RF Trans.	24B543066					
L4	Osc. Coil	24C535456					Part of M5
L5	1st IF Trans.	24B543085					
L6	2nd IF Trans.	24K543086	16-9001				
L7	3rd IF Trans.	24K543087	16-9001				
L8	Hash Choke	24A538914					10.3 Microhenries

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L9	.017A	41Ω	.64 Hy.	25B538791						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	4.5	: 1	25K543072						

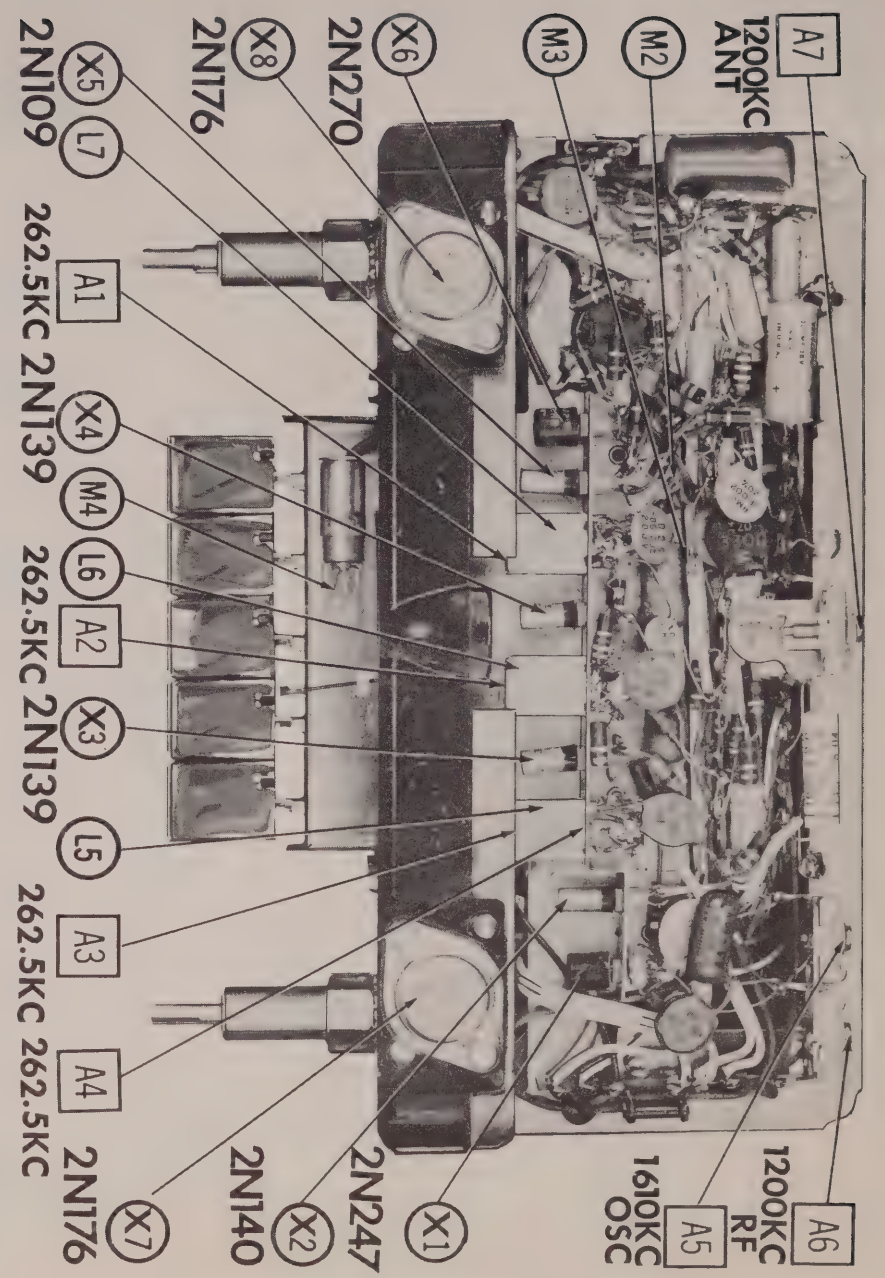
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	33Ω CT Tap @ 3-4Ω from CT	25K543073							

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA MOTOROLA PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	6" x 9"	PM	3-4Ω	50C541101 ①	69A3	① Alternate Part #50K541105

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	1AG	5A 32V	65R122345	1V543183	301005. (1AG 5A 32V)	155004	AGA5	HAF

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MOTOROLA PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N46	48B543138	1N48	1N34A	AVC Rectifier (Pigtail)
M3	1N46	48B543138	1N48	1N34A	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Lamp	65R533821	#1891
M5	Tuner	77K561160	AT-245, Complete

CABINETS & CABINET PARTS

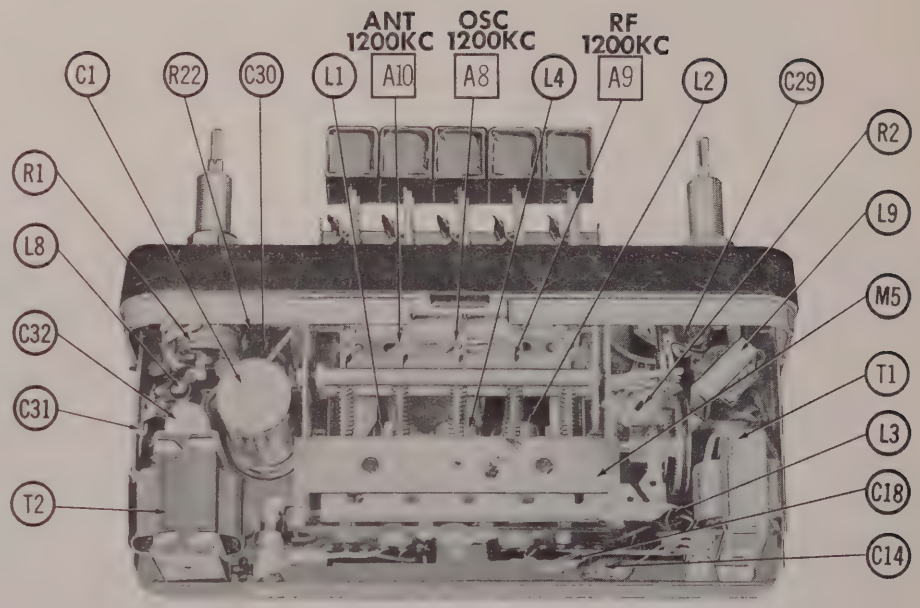
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

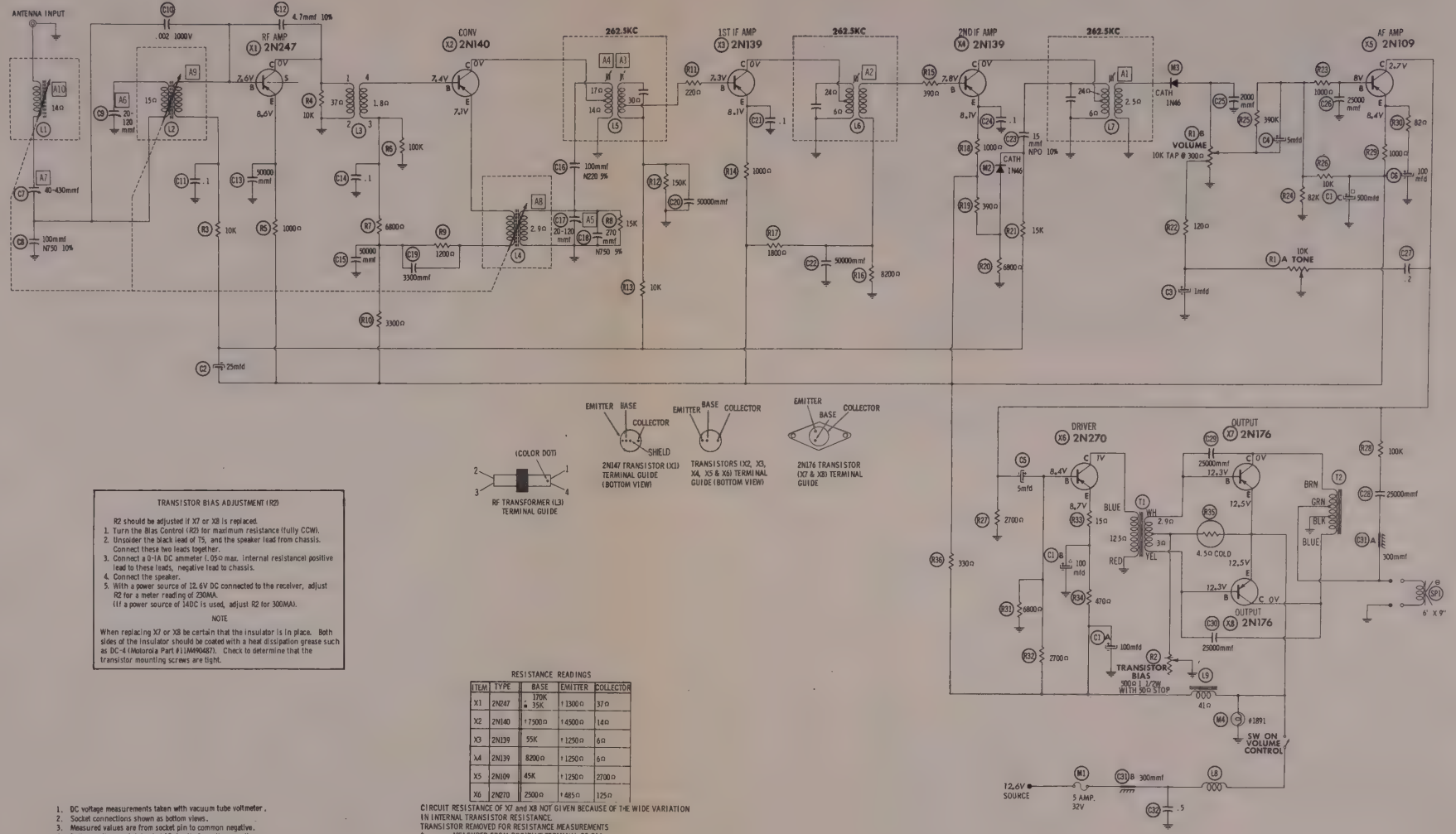
NAME	PART NO.	DESCRIPTION
Knob	1V543113	Off-On-Volume, Tuning
Knob	36K543092	Tone
Knob	36K543093	Dummy
Pushbutton	1V543112	5 used
Cover	1V543103	
Pointer	1V538739	
Dial Scale	34B543090	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

CHASSIS—TOP VIEW





EMITTER
BASE
COLLECTOR
SHIELD
2N147 TRANSISTOR (X1) TERMINAL GUIDE (BOTTOM VIEW)
TRANSISTORS (X2, X3, X4, X5 & X6) TERMINAL GUIDE (BOTTOM VIEW)
2N176 TRANSISTOR (X7 & X8) TERMINAL GUIDE
(COLOR DOT)
RF TRANSFORMER (L3) TERMINAL GUIDE

TRANSISTOR BIAS ADJUSTMENT (R2)

R2 should be adjusted if X7 or X8 is replaced.

1. Turn the Bias Control (R2) for maximum resistance (fully CCW).
2. Unsolder the black lead of T5, and the speaker lead from chassis. Connect these two leads together.
3. Connect a 0-1A DC ammeter (.05Ω max. internal resistance) positive lead to these leads, negative lead to chassis.
4. Connect the speaker.
5. With a power source of 12.6V DC connected to the receiver, adjust R2 for a meter reading of 230MA.
   (If a power source of 14DC is used, adjust R2 for 300MA).

NOTE

When replacing X7 or X8 be certain that the insulator is in place. Both sides of the insulator should be coated with a heat dissipation grease such as DC-4 (Motorola Part #1114M490487). Check to determine that the transistor mounting screws are tight.

RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N247	▪ 170K ▪ 35K	† 1300Ω	37Ω
X2	2N140	† 7500Ω	† 4500Ω	14Ω
X3	2N139	55K	† 1250Ω	6Ω
X4	2N139	8200Ω	† 1250Ω	6Ω
X5	2N109	45K	† 1250Ω	2700Ω
X6	2N270	2500Ω	† 685Ω	125Ω

CIRCUIT RESISTANCE OF X7 and X8 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
TRANSISTOR REMOVED FOR RESISTANCE MEASUREMENTS
† MEASURED FROM POSITIVE TERMINAL OF C1A.
▪ REVERSE METER LEADS.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊛ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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MOTOROLA
MODEL GV-800

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

MOTOROLA MODELS 5P21B, 5P21N, 5P21R (Ch. HS-633)

MOTOROLA MODELS 5P21B, 5P21N, 5P21R (Ch. HS-633)

MODEL 5P21N

MOTOROLA MODELS 5P21B, 5P21N, 5P21R (Ch. HS-633)

TRADE NAME	Motorola Models 5P21B, 5P21N, 5P21R (Ch. HS-633)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Three Power Portable AM Receiver
TUBES	Four
POWER SUPPLY	110-120 Volts AC-DC (or) 7.5 Volts DC "A" Supply & 90 Volts DC "B" Supply
RATING	8 Watts, .12 Amp. @ 117 Volts AC (or) 60MA @ 7.5 Volts DC & .9MA @ 90 Volts DC
TUNING RANGE—BROADCAST	532-1620KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1mfd capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Suggested alignment tools: A1, A2, A3 ..... General Cement #8195
Walsco #2531
A5 ..... General Cement #8606
Walsco #2543
A4, A6 ..... General Cement #5004
Walsco #2520

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 6 (grid) of 1R5 (V1). Low side to B-.	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200mmf to reduce hum modulation.
2.	"	"	1620KC	"	"	A4	"
3.	"	"	532KC	Tuning gang fully closed	"	A5	Adjust for maximum while rocking tuning gang. Repeat steps 2 and 3.
4.		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

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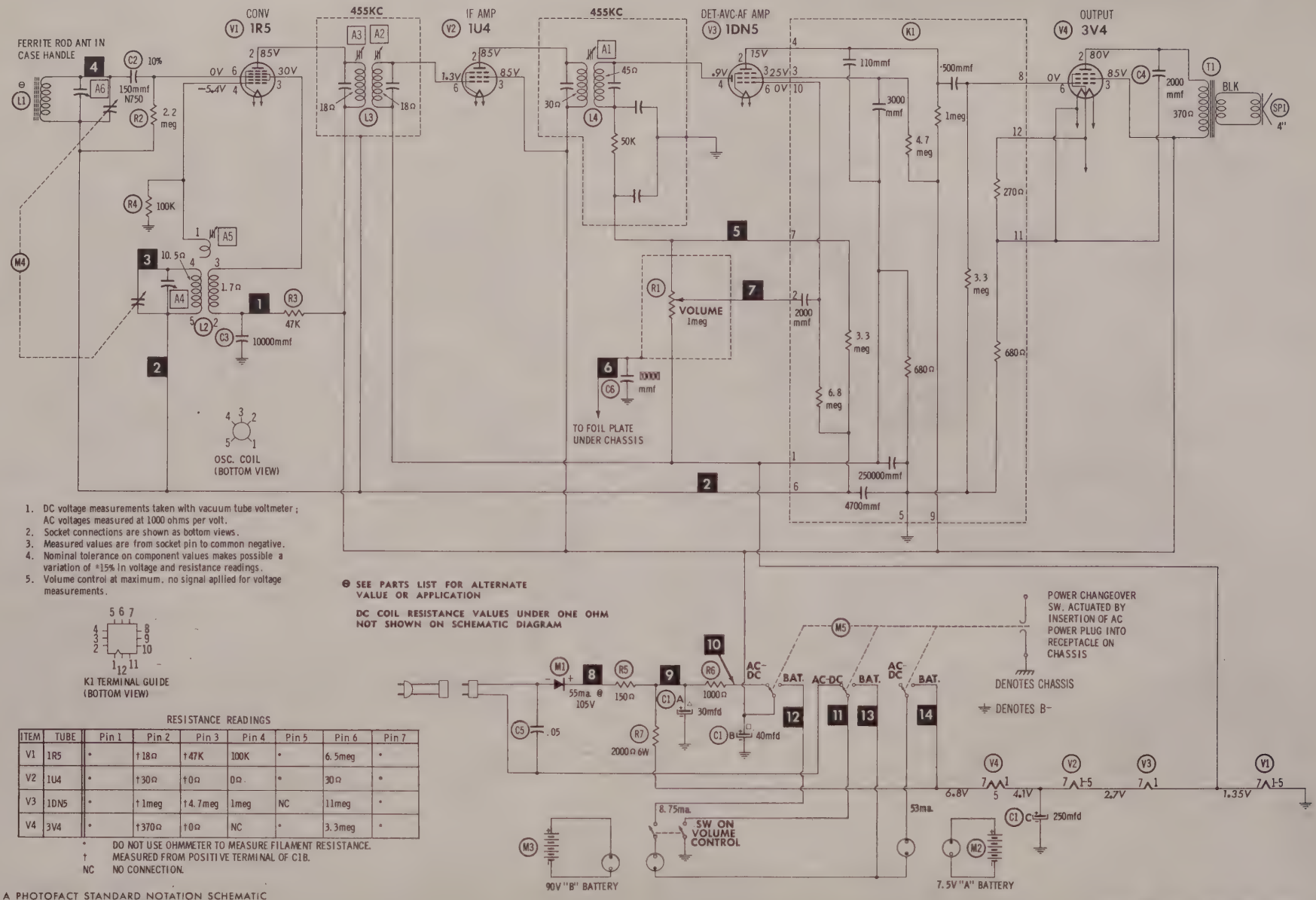
SET 431 FOLDER 15



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	•	†18Ω	†47K	100K	•	6.5meg	•
V2	1U4	•	†30Ω	†0Ω	0Ω	•	30Ω	•
V3	1DN5	•	†1meg	†4.7meg	1meg	NC	11meg	•
V4	3V4	•	†370Ω	†0Ω	NC	•	3.3meg	•

• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM POSITIVE TERMINAL OF C1B.
NC NO CONNECTION.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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MOTOROLA MODELS 5P21B, 5P21N, 5P21R (Ch. HS-633)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det. -AVC-AF Amp.	1DN5	
V4	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲30	150	23B640066		BBRT4415				R2742 *
B	■40	150			X25				
C	250	10							

* Not normally in distributors stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	150		21K127652	N750-DI 150	DTN-150	C10T15U	CN7-315	5TCU-T15	N750 10%
C3	10000		21B533471	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C4	2000		21K633268	BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C5	.05	400	8K121268	P488N-05	DF-503	CUB4S5	ACE615	4TM-S5	
C6	10000		21B533471	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	18K640078					
B	Switch							

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MOTOROLA PART No.	NOTES
R2	2.2meg		6K127001	
R3	47K		6K121687	
R4	100K		6K122313	
R5	150Ω		65B639999	Fuse Type
R6	1000Ω		6K121301	
R7	2000Ω	6	17B633148	

COILS (RF-IF)

ITEM No.	USE	MOTOROLA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loopstick	1V640529 ①					See Cabinet Parts
L2	Osc. Coil	24K640625					
L3	Input IF	24D637271					
L4	Output IF	24K639915					

① Part #1V640528 used in Model 5P21B. Part #1V640529 used in Model 5P21N. Part #1V640530 used in Model 5P21R.

PRINTED BOARD

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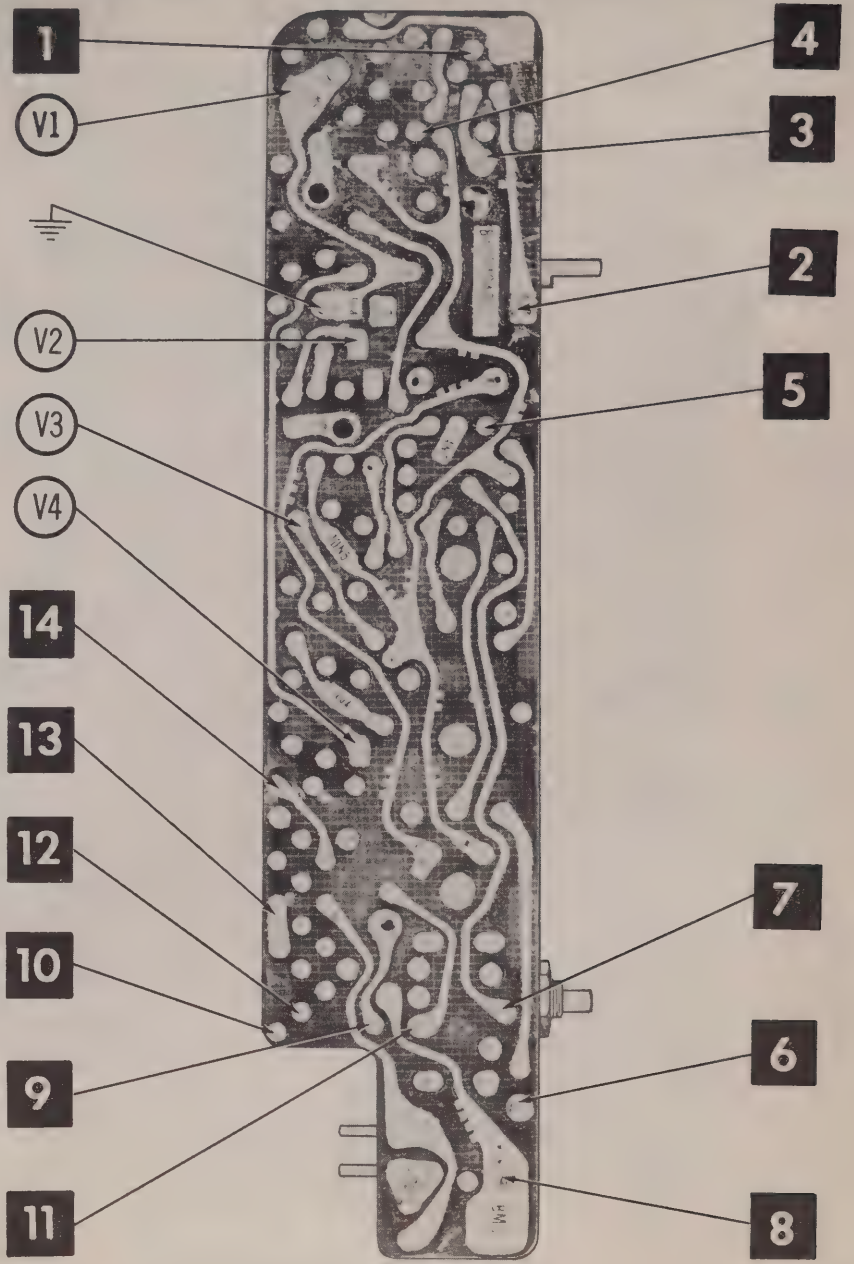
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	9500Ω	3-4Ω	25K640646		A-2998 ①		A-3329 ①	24S83 ①	S-11X①	① Use original channel frame.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	50C640208	4A07	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Audio Circuit	110mmf, 5000mmf, 2000mmf, 3000mmf, 47000mmf, 250000mmf 270Ω,680Ω, 680Ω, 1meg, 3.3meg 4.7meg, 6.8meg, 3.3meg	51C639914	

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	MOTOROLA PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.055A	48K631295	1234AH	TO65 SD-94 ①	65 K200 ①	① Silicon Type.

BATTERIES

ITEM No.	VOLTAGE	MOTOROLA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M2 M3	7.5V 90V		D5	P60	707	479	M-26	M214	

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Tuning Cap.	19B640133	2 Gang
M5	Switch	40K638490	Power Changeover (3PDT, Spring Return, Slide Type)
	Printed Board	84C640400	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

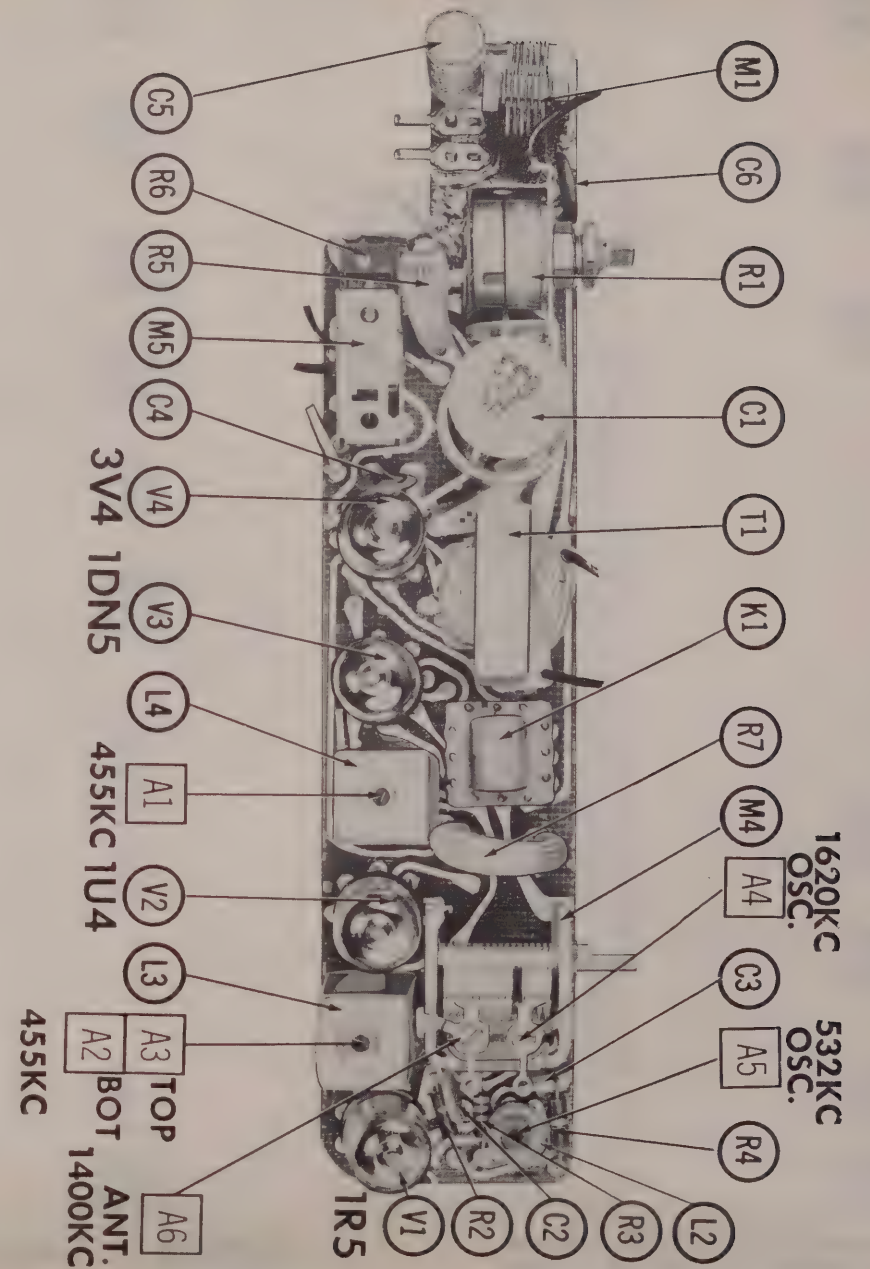
NAME	PART NO.	DESCRIPTION
Knob	36K640304	Tuning Model 5P21N
Knob	36C640303	Tuning, Models 5P21B, 5P21R
Knob	36K640306	Off-On-Volume, Model 5P21N
Knob	36B640305	Off-On-Volume, Models 5P21B, 5P21R
Cabinet	1V640529	Front, Includes Handle Assembly, Antenna & Medallion, Model 5P21N
Cabinet	1V640528	Front, Includes Handle Assembly, Antenna & Medallion, Model 5P21B
Cabinet	1V640530	Front, Includes Handle Assembly, Antenna, & Medallion, Model 5P21R
Cabinet	16E640357	Back, Less Washer, Model 5P21N
Cabinet	16K640358	Back, Less Armite Washer, Models 5P21B, 5P21R

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—TOP VIEW



PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

OLYMPIC MODEL 509

OLYMPIC MODEL 509

OLYMPIC MODEL 509

TRADE NAME	Olympic Model 509
MANUFACTURER	Olympic Radio & Tel. Corp., 34-01 38th Ave., Long Island City 1, N. Y.
TYPE SET	AC Operated AM Receiver With Electric Clock
TUBES	Five
POWER SUPPLY	105-125 Volts AC-60 Cycles
RATING	28 Watts, .30 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	535-1650KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

Suggested alignment tools: A1, A2, A3, A4..... General Cement #5097, 8727
Walsco #2515
A5, A6..... General Cement #5004, 5008, 5009
Walsco #2520

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to antenna stator lug of tuning gang. Low side to B-	455 KC (400 ∿ Mod.)	Tuning Gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001mfd to reduce hum modulation.
2.	"	"	1650 KC	"	"	A5	"
3.		Loop	1400 KC	Tune for 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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SET 431 FOLDER 16

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AV6	Note 1
V4	Output	50C5	
V5	Rectifier	35W4	

Note 1. Some versions may use type 12AT6 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	70	150	①	PRS150V8040	BBRD8415	TCT3115	TDLD-11	FMD-303	TVA-2460
B	40	150							

① Some versions may use a 50-40@150-150, Part No. 150-124

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	OLYMPIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	220			BPD-00022	DD-221	L10T22	UC-5322	5GA-T22	①
C3	.05	200	152-104	P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C4	220			BPD-00022	DD-221	L10T22	UC-5322	5GA-T22	①
C5	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	②
C6	10000		158-102	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C7	.05	400	152-111	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C8	.1	400	152-108	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	

Some versions use 270mmf in this application (Part #156-101).
Some versions use 2000mmf in this application (Part #152-101).

CONTROLS

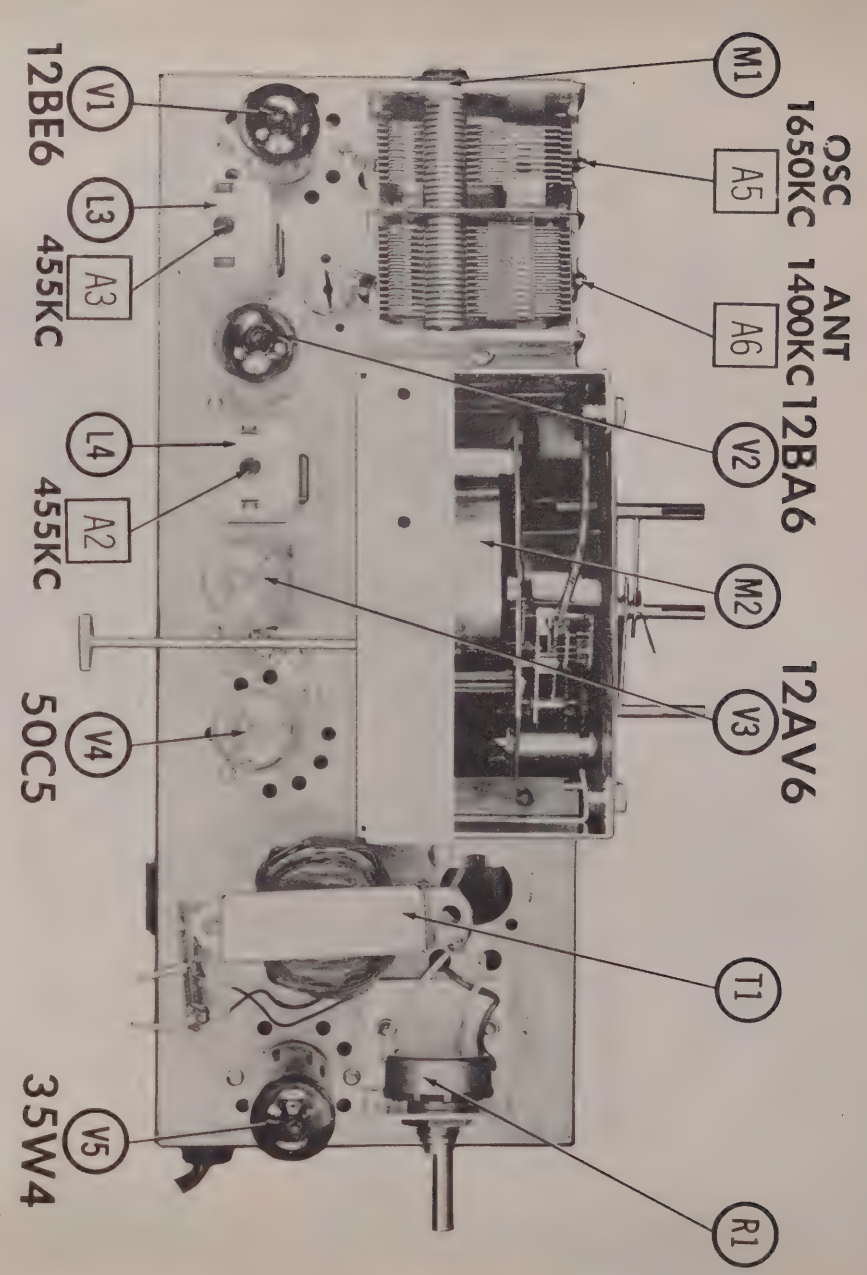
ITEM No.	RATING RESISTANCE	RATING WATTS	OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	120-123	B-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	OLYMPIC PART No.	NOTES
R2	2. 2meg		180-107	
R3	22K		180-102	
R4	220Ω		180-148	
R5	2. 2meg		180-107	
R6	6. 8meg		180-135	
R7	150Ω		180-111	
R8	1500Ω	1	180-157	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		OLYMPIC PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loopstick	132-127					
L2	Osc. Coil	136-125					
L3	Input IF	130-114	16-6758	BC-352	12-C1	RF-1	
L4	Output IF	130-114	16-6758	BC-353	12-C2	RF-2	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3200Ω Tap @ 6%	3-4Ω	138-116	Z1105	A-3031		A-3336	24S50A	S-16X	① Alternate part number
	2900Ω Tap @ 6%	3-4Ω	138-110C ①	Z1103 ②	A-3031 ②		A-3336 ②	24S50A ②	S-16X ②	② Drill new mounting hole

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLYMPIC PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	175-115C	4A1	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	OLYMPIC PART No.	REPLACEMENT DATA
K1	Audio Coupling Unit	250mmf, 5000mmf, 250K, 470K	166-109	Aerovox PA-112-2 Centralab PC-71 Cornell-Dubilier 112TM2 Sprague T-4

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M1	Tuning Cap.	160-110	2 Gang, Ant. 26-505mmf, Osc. 23-178mmf
M2	Clock	207-114	Telechron #C99S

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

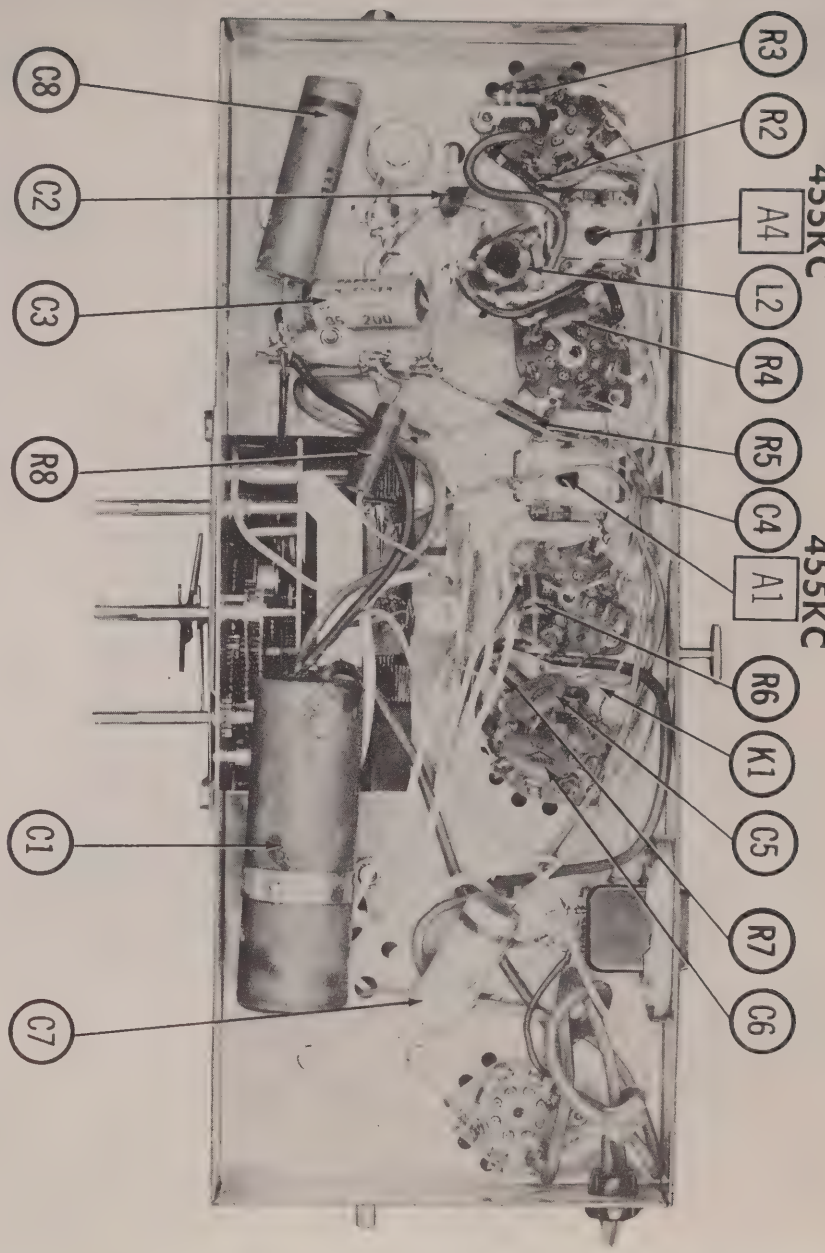
NAME	PART NO.	DESCRIPTION
Knob	290-106	Tuning, Includes Insert
Knob	290-104	Volume, Includes Insert
Knob	220-146	Telechron Clock
Cabinet	210-119	Shell Panel
Cabinet	290-107	Shell, Includes Nail

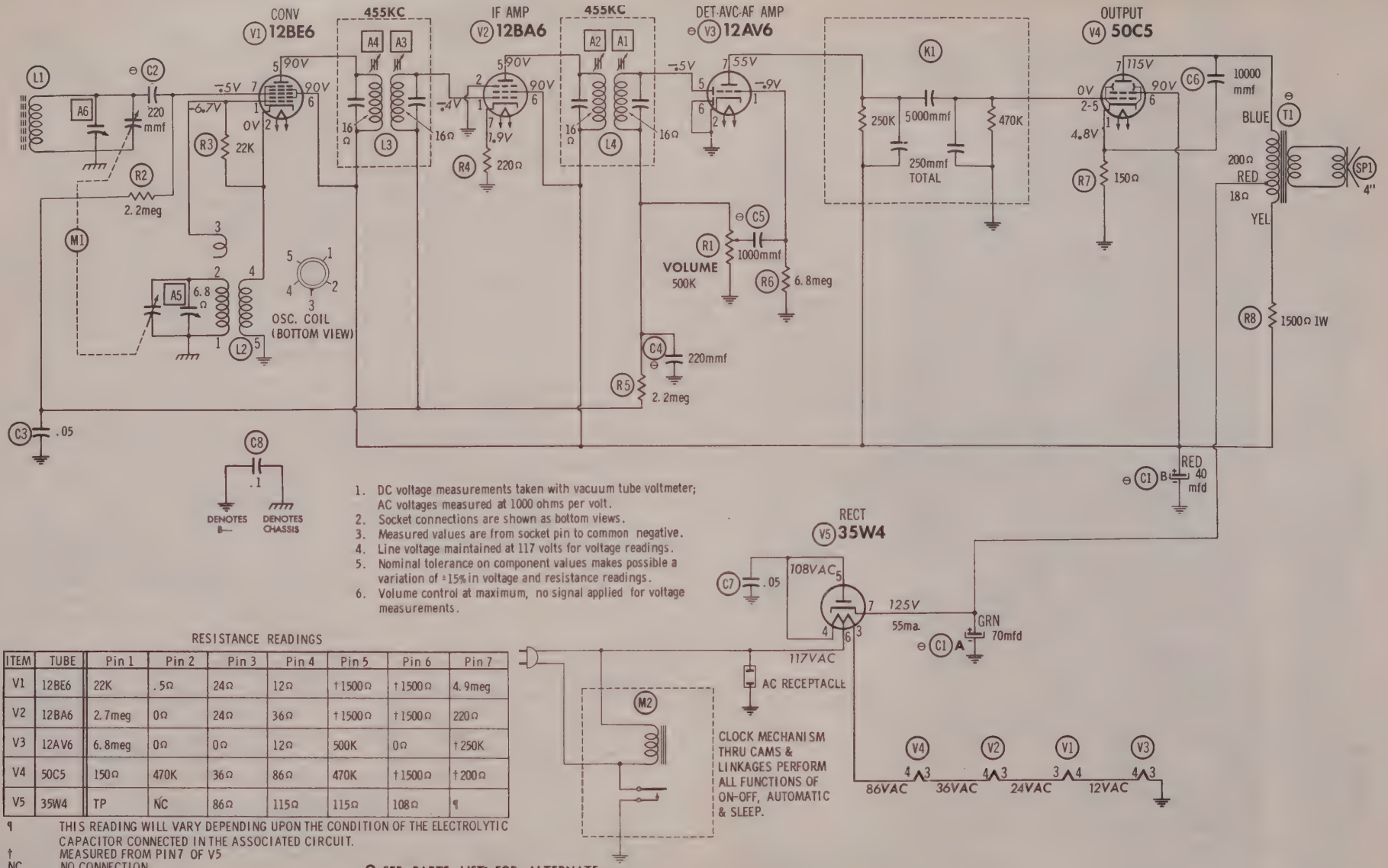
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.5Ω	24Ω	12Ω	†1500Ω	†1500Ω	4.9meg
V2	12BA6	2.7meg	0Ω	24Ω	36Ω	†1500Ω	†1500Ω	220Ω
V3	12AV6	6.8meg	0Ω	0Ω	12Ω	500K	0Ω	†250K
V4	50C5	150Ω	470K	36Ω	86Ω	470K	†1500Ω	†200Ω
V5	35W4	TP	NC	86Ω	115Ω	115Ω	108Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
† MEASURED FROM PIN 7 OF V5
NC NO CONNECTION
TP TIE POINT

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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OLYMPIC MODEL 509

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SILVERTONE MODEL 9216 (Ch. 132.45800)

SILVERTONE MODEL 9216 (Ch. 132.45800)

SILVERTONE MODEL 9216 (Ch. 132.45800)

TRADE NAME	Silvertone Model 9216 (Ch. 132.45800)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET	Three Power Portable AM Receiver
TUBES	Four
POWER SUPPLY RATING	105-120 Volts AC-DC (or) 7.5 Volts DC "A" Supply & 90 Volts DC "B" Supply 9 Watts, .12 Amp. @ 117 Volts AC (or) 53MA @ 7.5 Volts DC & 14MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1670KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05mfd	High side to pin 6 (grid) of 1R5 (V1). Low side to B-.	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200mmf to reduce hum modulation.
2.		Loop	1670KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	600KC	600KC	"	A5	Adjust for maximum output while rocking tuning gang. Repeat steps 2 and 3.
4.		"	1400KC	Tune to 1400KC signal	"	A6	Adjust for maximum output.

SET 431 FOLDER 17

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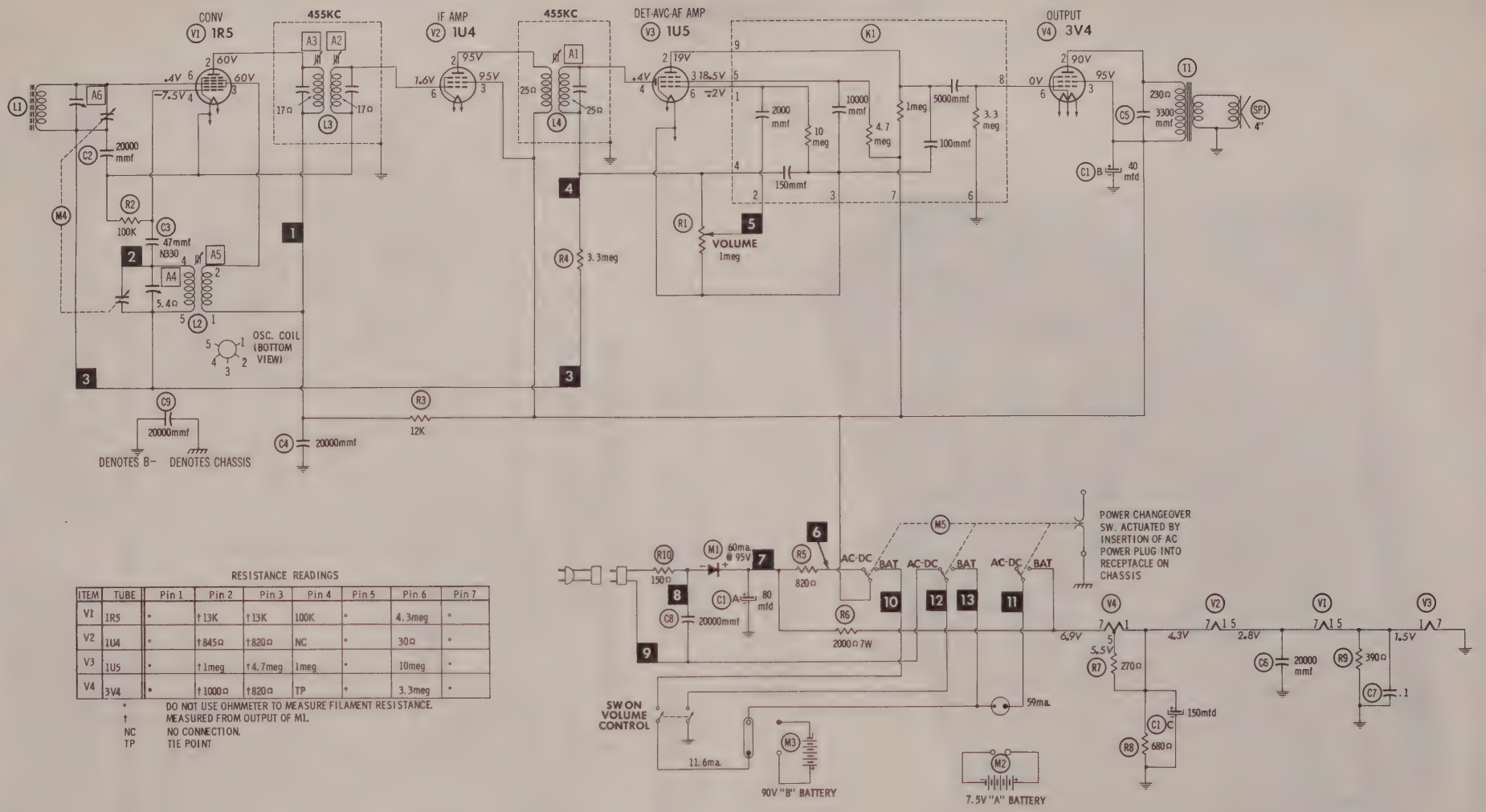

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	•	†13K	†13K	100K	•	4.3meg	•
V2	1U4	•	†845Ω	†820Ω	NC	•	30Ω	•
V3	1U5	•	†1meg	†4.7meg	1meg	•	10meg	•
V4	3V4	•	†1000Ω	†820Ω	TP	•	3.3meg	•

• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION.
TP TIE POINT

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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SILVERTONE MODEL 9216 (Ch. 132.45800)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det.-AVC-AF Amp.	1U5	
V4	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	150	44328-3						
B	40	150							
C	150	10							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	20000		43674-2	BPD-02	DD-203	BYB6S2		5HK-S2	N330
C3	47		43957-8						
C4	20000		43674-2	BPD-02	DD-203	BYB6S2		5HK-S2	
C5	3300		43674-14	BPD-0033	DD-332	BYA10D33	UC-5233	5GA-D33	
C6	20000		43674-2	BPD-02	DD-203	BYB6S2		5HK-S2	
C7	.1	50	43955-5	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C8	20000		43690-203	BPD-02	DD-203	BYB6S2		5HK-S2	
C9	20000		43674-2	BPD-02	DD-203	BYB6S2		5HK-S2	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	1meg	½	45250-2					Volume and switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		SILVERTONE PART No.	NOTES
	OHMS	WATT		
R2	100K		43687-104	
R3	12K		46689-123	
R4	3.3meg		43687-335	
R5	820Ω		43689-821	
R6	2000Ω	7	44448-4	
R7	270Ω		43680-271	
R8	680Ω		43689-681	
R9	390Ω		43689-391	
R10	150Ω		44814	

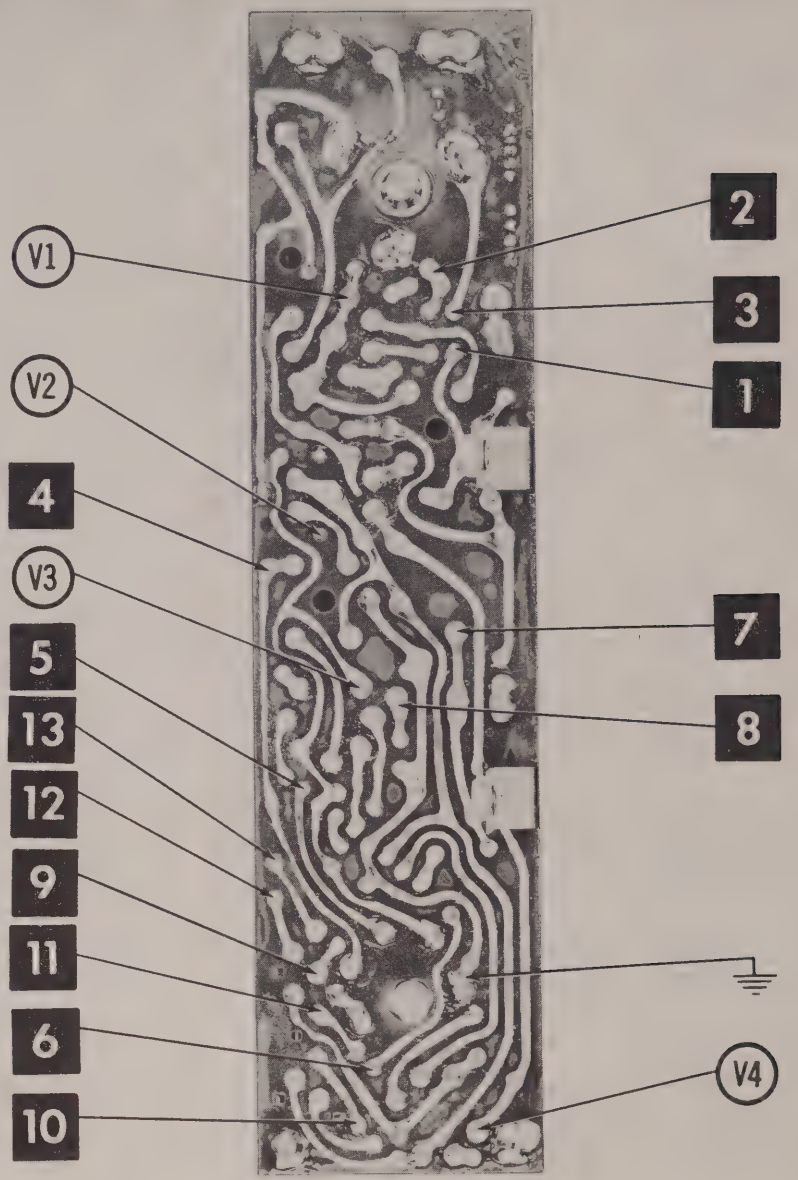
COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SILVERTONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	45534-6					
L2	Osc. Coil	43644-4					
L3	Input IF	44282-2					
L4	Output IF	45430-1					

PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	7700Ω	3-4Ω	42026-5	Z1110	A-2927①		A-3329	24S49	S-8X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	45600-2	4A07	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K1	Audio Coupling Circuit	10000mmf, 5000mmf, 100mmf, 150mmf, 2000mmf, 4.7meg, 1meg, 3.3meg, 10meg	43743-6	Centralab PC-160

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	SILVERTONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.060A	44465-4	1234AH	TO65 SD-94 ①	65AS K200 ①	① Silicon Type.

BATTERIES

ITEM No.	VOLTAGE	SILVERTONE PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M2	7.5V	57D6444	C5		717		M9		
M3	90V	57D6470		P60		479		M214	

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M4	Tuning Cap.	45428-1	2 Gang (Ant. 11-360mmf, Osc. 12-122mmf)
M5	Switch	44450	AC-DC-Battery (3PDT, Slide Type)
	Printed Board	45319-1	

CABINETS & CABINET PARTS

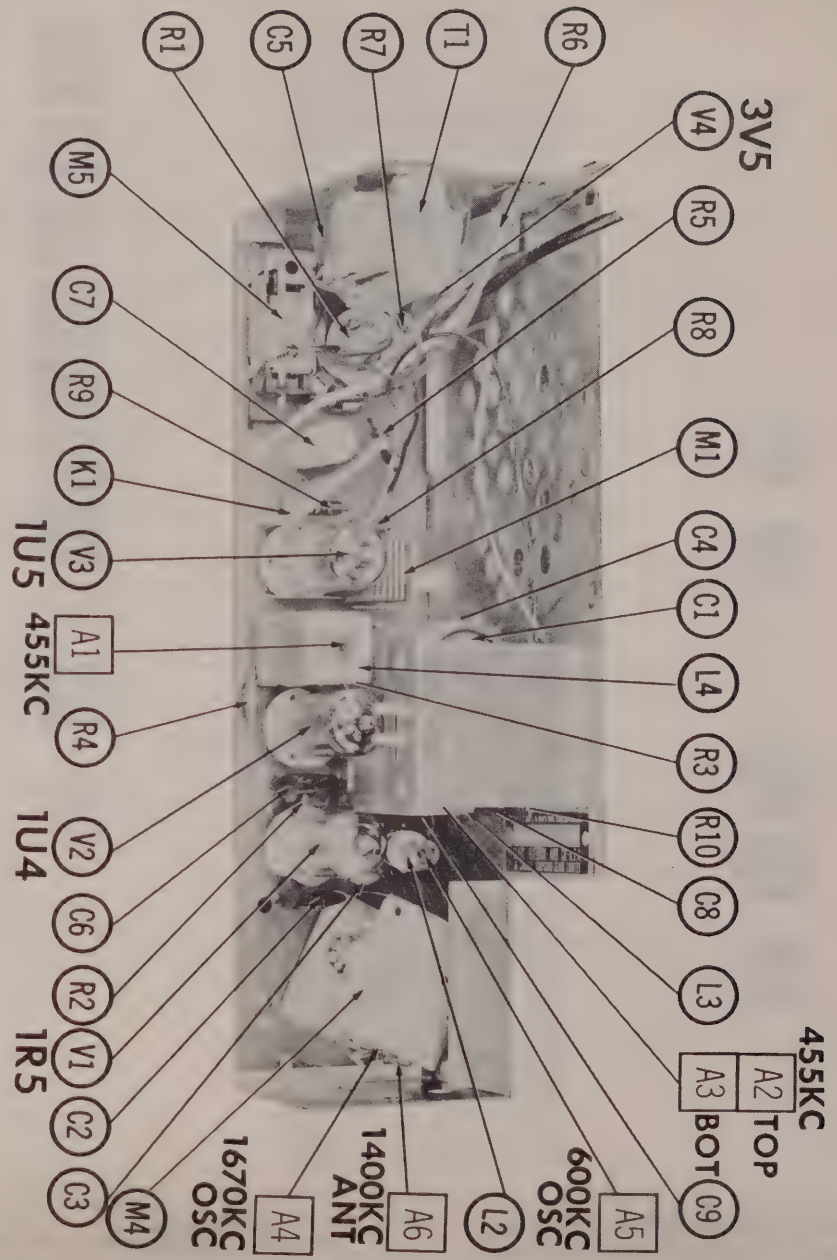
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

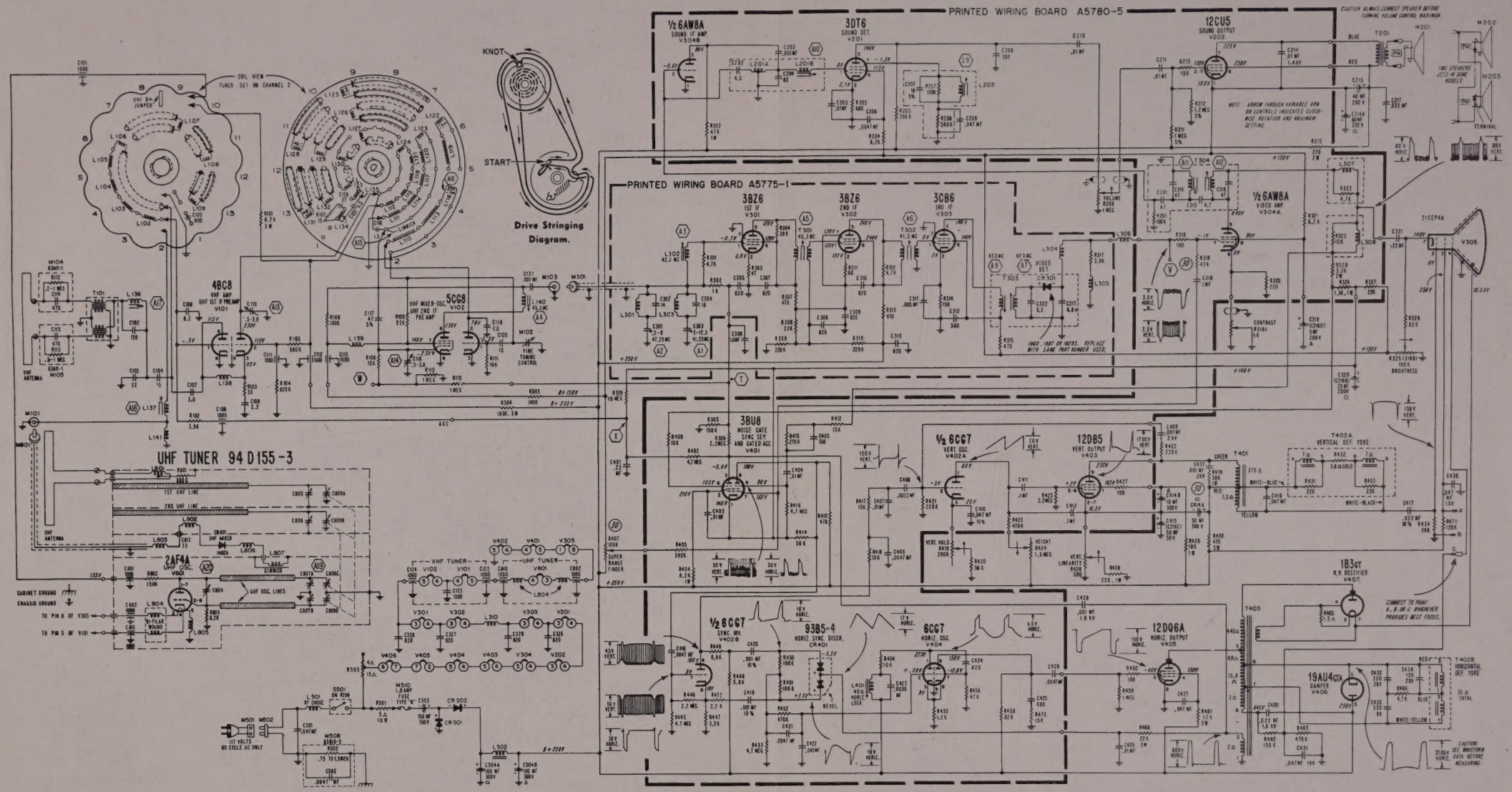
NAME	PART NO.	DESCRIPTION
Knob	45841-17	Tuning
Knob	45840-17	Volume-On-Off
Cabinet	45814-128	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

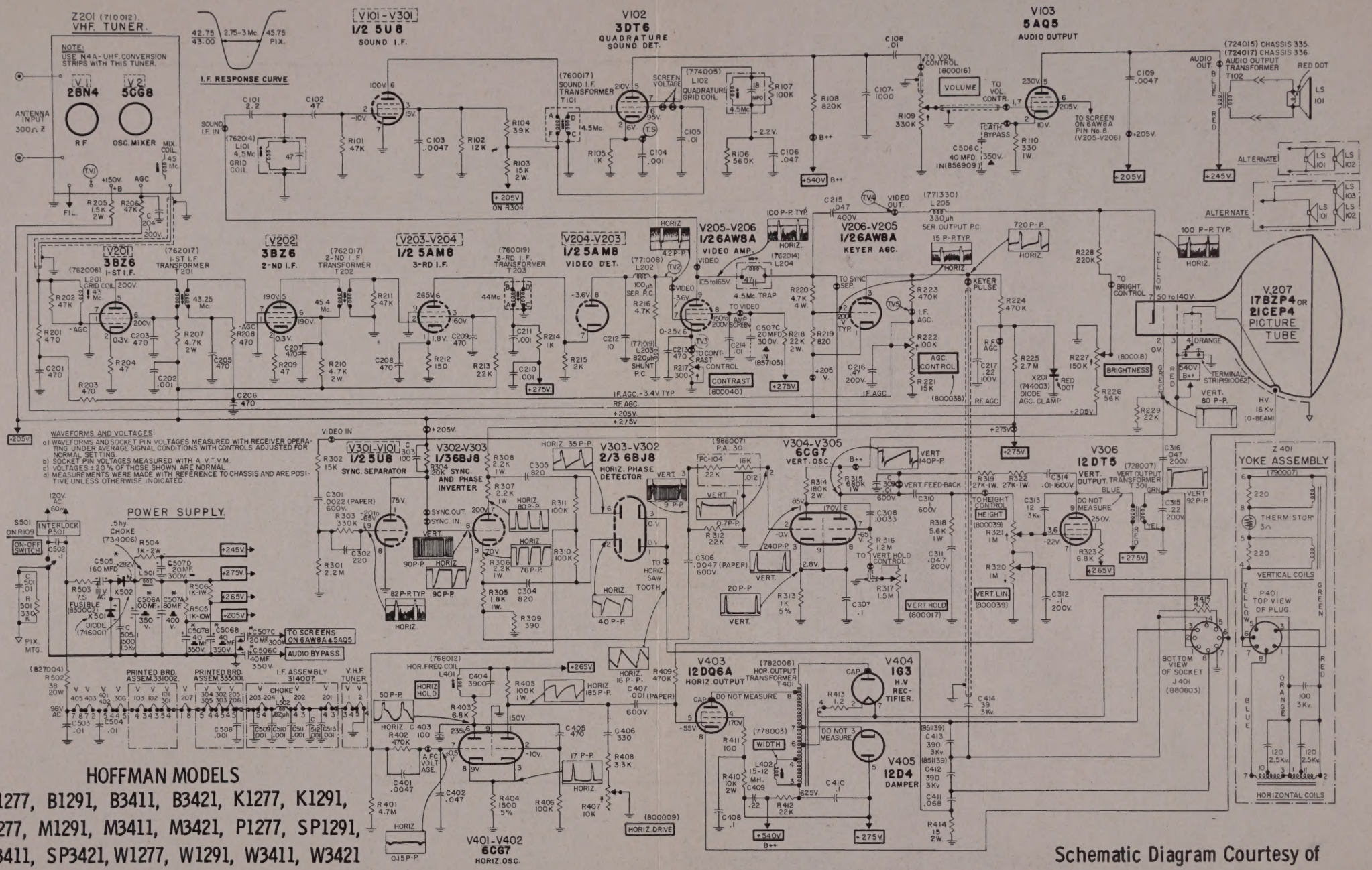
CHASSIS—TOP VIEW





ADMIRAL MODELS C21E11E, C21E12E, C21E13E, CA21E11E, CA21E12E, CA21E13E, T21E21E, T21E22E, T21E23E, TA21E21E, TA21E22E, TA21E23E (Ch. 16AR1C, 16AS1C, 16R1C, 16S1C,)

Schematic Diagram Courtesy of ADMIRAL CORP.


Z201 (710012) VHF. TUNER.
NOTE: USE N4A-UHF. CONVERSION STRIPS WITH THIS TUNER.
V1 28N4 R.F.
V2 5CG8 OSC. MIXER
I.F. RESPONSE CURVE
42.75 43.00 2.75-3 Mc. 45.75 PIX.
V101-V301 1/2 5U8 SOUND I.F.
V102 3DT6 QUADRATURE SOUND DET.
V103 5AQ5 AUDIO OUTPUT
(724015) CHASSIS 335.
(724017) CHASSIS 336.
AUDIO OUTPUT TRANSFORMER T102
RED DOT
V201 3BZ6 1-ST I.F.
V202 3BZ6 2-ND I.F.
V203-V204 1/2 5AM8 3-RD I.F.
V204-V203 1/2 5AM8 VIDEO DET.
V205-V206 1/26AW8A VIDEO AMP.
V206-V205 1/26AW8A KEYER AGC.
V207 17BZP4 OR 21CEP4 PICTURE TUBE
V301-V101 1/2 5U8 SYNC. SEPARATOR
V302-V303 1/36BJ8 SYNC. AND PHASE INVERTER
V303-V302 2/3 6BJ8 HORIZ. PHASE DETECTOR
V304-V305 6CG7 VERT. OSC.
V306 12DT5 VERT. OUTPUT
Z401 YOKE ASSEMBLY
V401-V402 6CG7 HORIZ. OSC.
V403 12DQ6A HORIZ. OUTPUT
V404 1G3 H.V. RECTIFIER.
V405 12D4 DAMPER
POWER SUPPLY.
WAVEFORMS AND VOLTAGES:
a) WAVEFORMS AND SOCKET PIN VOLTAGES MEASURED WITH RECEIVER OPERATING UNDER AVERAGE SIGNAL CONDITIONS WITH CONTROLS ADJUSTED FOR NORMAL SETTING.
b) SOCKET PIN VOLTAGES MEASURED WITH A V.T.V.M.
c) VOLTAGES ±20% OF THOSE SHOWN ARE NORMAL.
d) MEASUREMENTS WERE MADE WITH REFERENCE TO CHASSIS AND ARE POSITIVE UNLESS OTHERWISE INDICATED.

HOFFMAN MODELS

B1277, B1291, B3411, B3421, K1277, K1291, M1277, M1291, M3411, M3421, P1277, SP1291, SP3411, SP3421, W1277, W1291, W3411, W3421

(Ch. 335, 336)

Schematic Diagram Courtesy of

HOFFMAN ELECTRONICS CORP/CONSUMER PRODUCTS DIV.

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